

# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. 826.1617 (JDH)

First Named Inventor or Application Identifier:

Hirohisa NAITO, et al.

Express Mail Label No.

**APPLICATION ELEMENTS**

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: **Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231**

1. ☒ Fee Transmittal Form
2. ☒ Specification, Claims & Abstract ..... [ Total Pages: 90 ]
3. ☒ Drawing(s) (35 USC 113) ..... [ Total Sheets: 18 ]
4. ☐ Oath or Declaration ..... [ Total Pages: 4 ]
  - a. ☒ Newly executed (original or copy)
  - b. ☐ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 17 completed)
    - i. ☐ **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation by Reference (usable if Box 4b is checked)  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Microfiche Computer Program (Appendix)
7. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
  - a. ☐ Computer Readable Copy
  - b. ☐ Paper Copy (identical to computer copy)
  - c. ☐ Statement verifying identity of above copies

**ACCOMPANYING APPLICATION PARTS**

8. ☒ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) Statement (when there is an assignee) [ ] Power of Attorney
10. ☐ English Translation Document (if applicable)
11. ☒ Information Disclosure Statement (IDS)/PTO-1449[1] Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
14. ☐ Small Entity Statement(s) [ ] Statement filed in prior application, status still proper and desired.
15. ☒ Certified Copy of Priority Document(s) (if foreign priority is claimed) (Japanese Appln. 11-271916, filed 9/27/99)
16. ☐ Other:

**17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:**[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No:      /     **18. CORRESPONDENCE ADDRESS**

21171

PATENT TRADEMARK OFFICE

Staas &amp; Halsey

<b>NEW APPLICATION FEE TRANSMITTAL</b>		Attorney Docket No.	826.1617 (JDH)	
		Application Number	To be assigned	
		Filing Date	September 1, 2000	
AMOUNT ENCLOSED	\$	First Named Inventor	Hirohisa NAITO	

FEE CALCULATION (fees effective 12/29/99)					
CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS	26 - 20 =	6	X \$ 18.00 =	\$ 108.00
	INDEPENDENT CLAIMS	14 - 3 =	11	X \$ 78.00 =	858.00
	MULTIPLE DEPENDENT CLAIMS (any number; if applicable)			+ \$260.00 =	
	<b>BASIC FILING FEE</b>				690.00
	Total of above Calculations =				\$ 1,656.00
	Surcharge for late filing fee, Statement or Power of Attorney (\$130.00)				+
	Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28).				-
	<b>TOTAL FILING FEE =</b>				\$ 1,656.00
	Surcharge for filing non-English language application (\$130.00; 37 CFR 1.52(d))				+
	Recordation of Assignment (\$40.00; 37 CFR 1.21(h)(1))				40
	<b>TOTAL FEES DUE =</b>				\$ 1,696.00

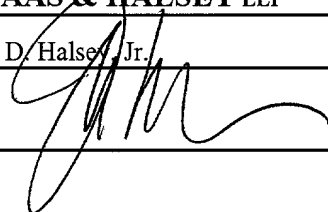
  

METHOD OF PAYMENT	
<input checked="" type="checkbox"/> Check enclosed as payment. <input type="checkbox"/> Charge "TOTAL FEES DUE" to the Deposit Account No., below. <input type="checkbox"/> No payment is enclosed and no charges to the Deposit Account are authorized at this time.	

GENERAL AUTHORIZATION	
<input checked="" type="checkbox"/> If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to:  <div style="display: flex; justify-content: space-between;"> <div>Deposit Account No.</div> <div style="border: 1px solid black; padding: 2px;">19-3935</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>Deposit Account Name</div> <div style="border: 1px solid black; padding: 2px;">STAAS &amp; HALSEY LLP</div> </div> <input checked="" type="checkbox"/> The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC § 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.53(b) and/or continuations/divisionals/CPAs under 37 CFR 1.53(d)) to maintain pendency hereof or of any such related application.	

SUBMITTED BY: STAAS & HALSEY LLP			
Typed Name	James D. Halsey, Jr.	Reg. No.	22,729
Signature		Date	September 1, 2000

APPLICATION FOR  
UNITED STATES LETTERS PATENT  
SPECIFICATION

INVENTOR(s): Hirohisa NAITO, Kuniharu TAKAYAMA,  
Minoru SEKIGUCHI and Yoshiharu MAEDA

Title of the Invention: APPARATUS AND METHOD FOR PRESENTING  
SCHEDULE INFORMATION DEPENDING ON  
SITUATION

## **APPARATUS AND METHOD FOR PRESENTING SCHEDULE INFORMATION DEPENDING ON SITUATION**

### **Background of the Invention**

#### **5 Field of the Invention**

The present invention relates to an apparatus and a method of presenting a schedule, suggesting and performing an action depending on the schedule, a storage medium storing a program for the process performed for  
10 the apparatus and the method, a schedule storage medium, and an automatic schedule generation apparatus, and provides a method of presenting a user with information and action according to a scheduling method and the schedule. Specifically, the present invention relates  
15 to a technology of applying to a car navigation system, a personal computer (hereinafter referred to as a PC), a PDA (personal digital assistant), a cellular phone, etc. for use in managing a schedule and supporting actions, etc.

20

#### **Description of the Related Art**

There is a conventional schedule managing method for managing a schedule based on a time axis. In addition, there is an action support system for indicating a schedule  
25 on time or before the time when the schedule is carried

out by storing the schedule on a schedule note.

In the above mentioned conventional schedule management, a schedule is managed based on time. On the other hand, there is a portable terminal system for  
5 notifying whether or not there is an action to be taken by a user by managing a schedule of the user for each place, not based on time (Japanese Patent Application Publication No.9-113599). In this system, the current  
positional information about the portable terminal system  
10 is obtained, the place-action information in which an action to be taken by a user is entered for each place is referred to, and the user is notified of the action to be taken at each place when he or she approaches or exits the place entered in the information.

15 However, there have been the following problems with the conventional schedule management system based on the place information such as the above mentioned Japanese Patent Application Publication No.9-113599.

(1) There are a number of applications in which  
20 it is convenient to be informed of the schedule of a user. However, since a schedule is managed in a data format depending on applications according to the conventional systems, it is difficult for a user to generate schedule data in an external device using, for  
25 example, a general-purpose editor, etc., input the

generated data into a portable terminal system, and utilize the data. Furthermore, there has been the problem that schedule information cannot be appropriately shared among various applications.

5           (2) In addition, since the conventional systems manage a schedule in a data format depending on applications, it is difficult to understand the contents of the schedule only by checking a data string representing the schedule, and to centrally manage the schedule data  
10 as a database by an information center.

          (3) When a conventional device which manages a schedule according to place information arrives at a place entered in advance in place-action information, the device only notifies the user of the existence of  
15 an action to be taken at the place, but cannot adjust (specify) the type or the timing of announcement. Furthermore, the device does not have the function of automatically executing a schedule by, for example, transmitting electronic mail.

20           (4) When a conventional device which manages a schedule according to place information does not arrive at a place entered in advance in place-action information, the device does not notify the user of the existence of an action to be taken at the place. Therefore, the  
25 device does not have the function of performing an

operation as if it were visiting a place without actually visiting the place and allowing the user to have a virtual experience or a pseudo experience.

(5) In addition, with the conventional device,  
5 a schedule is close to an owner of a portable terminal system, and new schedule data such as a common model schedule has not been utilized.

(6) Furthermore, with the conventional device,  
a schedule is entered as place-action information.  
10 Therefore, an owner of a portable terminal system has to input data each time, and the device does not have the function of automatically generating a schedule depending on the action of a user.

## 15 **Summary of the Invention**

The present invention has been developed to solve the above mentioned problems, aims at providing an apparatus capable of managing a schedule based not only on time, but also on a combination of time and place,  
20 presenting information for the schedule management of a user, and suggesting/performing an action at an appropriate time and place. In addition, the present invention aims at providing an apparatus capable of describing a schedule in time and place in a common format,  
25 specifying a timing and a presenting method for issuing

a schedule, and sharing schedule information among various systems. Furthermore, the present invention aims at providing an apparatus capable of automatically generating a schedule depending on the action of a user.

5       The schedule presentation apparatus according to the present invention includes an input device, a process device, a situation device, and an execution device, and provides a user with information corresponding to a schedule.

10       According to the first aspect of the present invention, the input device inputs data containing a sequence of predetermined specifications described by a combination of a place condition, a time condition, and a schedule to be performed based on the place condition and the time condition. The process device processes  
15       the schedule described in the input data depending on the ranges of place information and time information presented to a user.

20       According to the second aspect of the present invention, the input device inputs data containing a sequence of predetermined specifications described by a combination of a place condition, a time condition, a schedule to be performed based on the place condition and the time condition, presented information for the  
25       schedule to a user, and a method of presenting the



information. The process device processes at least one of the schedule and the presented information for the schedule described in the input data depending on the ranges of place information and time information presented to the user.

According to the third aspect of the present invention, the input device inputs data containing a sequence of predetermined specifications described by a combination of a place condition, a time condition, a schedule to be performed based on the place condition and the time condition, presented information for the schedule to a user, and a method of presenting the information. The situation device either obtains a situation of the current place and the current time or generates a situation of a virtual current place and a virtual current time. The process device processes at least one of the schedule and the presented information for the schedule described in the input data depending on the current place and the current time obtained by either obtaining or generating the situation.

According to the fourth aspect of the present invention, the input device inputs data containing a sequence of predetermined specifications described by a combination of a place condition, a time condition, a schedule to be performed based on the place condition

and the time condition, presented information for the schedule to a user, a method of presenting the information, and an action to be taken for the schedule. The situation device either obtains a situation of the current place and the current time or generates a situation of a virtual current place and a virtual current time. The process device processes at least one of the schedule and the presented information for the schedule described in the input data depending on the current place and the current time obtained by either obtaining or generating the situation. The execution device performs the action to be taken for the schedule described in the input data depending on the current place and the current time obtained by either obtaining or generating the situation.

Furthermore, the schedule presentation apparatus according to the present invention can display a schedule with a place condition in the display range of a map, and control the presenting process by a combination of a time condition and a place condition.

### Brief Description of the Drawings

FIG. 1 shows an example of the configuration of the present invention;

FIG. 2 shows an example of the structured data for schedule management;

FIG. 3 shows a flow of the process of the input unit;

FIG. 4 shows a flow of the process of the schedule conversion unit;

5        FIG. 5 shows a flow of the process of the preparing process of the instruction process unit;

FIG. 6 shows a flow of the process of the executing process of the instruction process unit;

10       FIG. 7 shows a flow of the process of the situation obtaining unit;

FIG. 8 shows a flow of the situation preparing process of the situation generation unit;

FIG. 9 shows a flow of the situation generating process of the situation generation unit;

15       FIG. 10 shows a flow of the process of the schedule presentation unit;

FIG. 11 shows a flow of the process of the action suggestion and execution unit;

20       FIG. 12 shows an example of the configuration of the automatic schedule generation unit;

FIG. 13 shows a flow of the process of the automatic schedule generation unit;

25       FIG. 14 shows an example of the configuration of the system when the present invention is applied to a PDA;

FIG. 15 shows an example of displaying a viewer;

FIG. 16 shows an example of the configuration of the system when the present invention is applied to a cellular phone/PHS;

5        FIG. 17 shows an example of the appearance of a user terminal (cellular phone/PHS), and an example of displaying text information about a schedule;

10        FIG. 18 shows an example of the appearance of a user terminal (cellular phone/PHS), and an example of displaying image information about a schedule; and

FIG. 19 shows another example of the configuration of the present invention.

#### **Description of the Preferred Embodiments**

15        The embodiments of the present invention are described below by referring to the attached drawings.

Before explaining the units for realizing the present invention, some examples of uses of the present invention are briefly described below for easy comprehension of the present invention.

20

(1) Example of the management of a schedule entered by a user

A user first describes his or her own schedule on a scheduler. At this time, the schedule containing not only a time, but also a combination of a time and a place

25

can be described. For example, the following schedule can be described.

- 10:00 Meeting
- Near a camera shop: Buy a roll of film
- 5       · In Shinjuku at lunch time: Visit the shop A having a good reputation

The scheduler stores the description, and presents schedule information when a condition is satisfied. That is, when a user comes near a camera shop, the message such as 'Buy a roll of film.' is issued to the user. Since the schedule information is described in a predetermined script language in which time information, the place information, the presented information, and the action execution information can be described, the information can be available without limiting the application to specific portable information appliances.

(2) Example of a combination with an event schedule, and an adjustment with schedules of others such as friends, colleagues, etc.

Since the method of describing a schedule can be set in the same format for the data of a user's personal schedule, the data from an information service center, etc. such as event information, etc., the data generated by a friend, a colleague, etc., the data of a user's personal schedule can be combined with the data of a

schedule such as an event, etc., the data of a friend, a colleague, etc. to easily generate a new schedule plan.

First, a schedule containing a work schedule of a company and a private schedule is prepared as a personal  
 5 schedule, and then the type, etc. of event information desired by a user such as 'movies', 'sports', etc. is specified. Ascheduler automatically downloads the event information in the user-specified field in the event schedule stored in the server of the information service  
 10 center, and automatically inserts the information to the user schedule script. Thus, the scheduler can present a schedule without missing a favorite sports program, and automatically suggest a place to be visited for fun (for example, a movie theater) when a user is free.

15 When a user has to share an activity with a friend or a colleague, each person has to find a common free day and time. This also can be adjusted with a common format.

(3) An example of control by a life pattern format  
 20 A number of model schedules containing various living models with occupations and environments taken into account. A user downloads the model schedules, executes any of the schedules, and experiences the life pattern according to the schedule.

25 Some model schedules are described below.

- talent life schedule: for a user who wants to experience the life of talent

- schedule for passing an exam of Tokyo University:  
for passing an exam of Tokyo University by following  
5 the schedule

- schedule recommended by Ministry of Welfare: for a user who lives an irregular life, and wants to live a normal life

- training schedule for selected football team of  
10 Japan: for boy football players who want to enter the selected team of Japan

According to the above listed model schedules, a user can follow one of the model schedules, compare his or her own life with the life of his or her idol, share  
15 the feeling of the idol, and enjoy the pseudo experience.

In addition, for example, a schedule recommended by the Ministry of Welfare to check the daily life of a user and improve his or her own life to live a healthy life. These models can be a one-day model, a one-week  
20 model, a one-month model, a one-year model, or a life model.

Therefore, the present invention includes a method of describing a schedule at least about 'a time and a place', and a schedule management system which can process  
25 the schedule depending on 'a time and a place'. The

schedule management system includes a device for inputting a schedule, a device for executing an instruction, and a device for suggesting a schedule and performing an action.

5           The device for inputting a schedule inputs a schedule specified by a user by communicating the schedule with an external device which provides the schedule through a network, or by reading it from a computer-readable electronic medium.

10           The device for executing an instruction analyzes an input schedule, converts it into a data structured in a hierarchical and group form for schedule management, and executes an instruction represented in a structured data format depending on a condition.

15           The device for presenting a user with a schedule, or suggesting and performing a necessary action presents a corresponding schedule, suggests or performs a necessary action at each place or time, at a specific time and place, or depending on an external event such as a user  
20   input operation, a user specified action, etc. for all or a part of the schedule.

          As an operation mode of the apparatus according to the present invention, a real mode or a simulation mode can be selected. In the real mode, an instruction  
25   is executed depending on the condition of the actual



current time and the actual current place. In the simulation mode, it is executed depending on condition of the virtual current time and the virtual current place.

Thus, a schedule is presented to a user, and a necessary  
5 action is suggested or performed.

A program for realizing each of the above mentioned process devices can be stored in an appropriate storage medium such as computer-readable portable medium memory, semiconductor memory, a hard disk, etc. In addition,  
10 a schedule can also be stored in portable medium memory such as a computer-readable magnetic disk, an optical disk, an IC card, and an appropriate storage medium such as a hard disk, etc., and can be recorded as a printed bar code.

15 The schedule used in the present invention can be generated and edited by a normal text editor. In addition, it can be semi-automatically or automatically generated using the history of the time and the positional information obtained when an action is actually performed.

20 Thus, the feature of the method of describing a schedule relating to the 'time and place' according to the present invention resides in that a sequence of instructions of a schedule depending on a time and a place is described in a language based on a designated  
25 specification, easily read and written by a user, generated,

presented, and used in a common format by various devices,  
and easily copied.

To this schedule, a schedule about a time and a  
place, the information to be presented to a user and  
5 the output format at the time so that a schedule can  
be presented to a user at a necessary time and place  
depending on the schedule, and a necessary action can  
be suggested and performed. Furthermore, a schedule  
can be communicated between a center and a client, or  
10 between terminal units to generate or edit a schedule  
suitable for a user.

FIG. 1 is a block diagram of an example of the  
configuration of the apparatus according to the present  
invention. According to the present invention, a  
sequence of instructions for each time and place recorded  
15 in various formats is described in a predetermined  
descriptive language comprehensible to a user and computer.

FIG. 1 shows an example in which a markup language is  
used in describing a schedule.

20 An instruction refers to a section of a process  
in which one of schedules about a time and a place is  
presented to a user, or a necessary action is suggested  
and performed. For example, it can be 'When a meeting  
is scheduled to be held at 10:00, it is announced 10  
25 minutes before the start of the meeting', When a user

has a schedule that he or she takes Shinkansen at 11:00,  
and when the user will be late for the train because  
the user is now on a local train, the user is suggested  
to transfer into an express train', etc. That is, it  
5 is a combination of a schedule and a description as to  
what action is to be taken by a user relating to the  
schedule.

Such a sequence of instructions is described in  
a description format of a markup language such as an  
10 XML (eXtensible Markup Language), and is referred to  
as a schedule script or simply as a schedule.

A schedule script is stored and managed in a center  
60, or stored in various media 50 such as a magnetic  
disk, CD-ROM, etc., and read from a user terminal 1.

15 An input unit 11 of each user terminal 1 selects  
and reads information corresponding to an operation input  
such as a request from a user, from the schedule script  
stored in the center 60 through the network access unit  
18, or from the schedule script stored in the media 50  
20 through the media access unit 19, and passes it to a  
schedule conversion unit 12. When the schedule  
management is constantly performed, the schedule always  
exists in the schedule conversion unit 12.

The schedule conversion unit 12 analyzes the syntax  
25 of the schedule script received from the input unit 11,

and converts it into structured data for easy schedule management. There can be a function, provided in the schedule conversion unit 12, of checking whether or not an inconsistent schedule exists, and removing it if it actually exists. When an instruction process unit 13 directly reads and processes the corresponding portion of the schedule script, the schedule conversion unit 12 is not required.

The instruction process unit 13 obtains the current situation (the current place, the current time, etc.) of the user, and executes an instruction for a corresponding schedule. When the instruction is executed, the execution timing can be shifted by an attribute such as 'delay', etc. The type of instruction can refer to representing a schedule to a user by a schedule presentation unit 14, or suggesting or performing a necessary action by an action suggestion/execution unit 15. The current situation of the user can be obtained from a situation obtaining unit 16 in a real mode, and from a situation generation unit 17 in a simulation mode.

A schedule script is obtained by describing a sequence of the instructions of a schedule corresponding to the time and the place using a tag in the description format of a markup language. A generated schedule script can be as easily read and written as the existing markup

language, thereby easily retrieved and processed. In addition, a schedule script enables instructions to be rearranged, serialized, parallelized, and optimized, and data to be structured (in a hierarchical structure, in a group, etc.). Since schedules relating to various times and places can be described and corresponding processes can be set using the schedule script, schedules can be easily generated and managed.

Furthermore, since a schedule script is basically text data, a schedule script obtained from the center 60, etc. can be processed depending on the user's terminal, and one schedule script can be processed in various devices and systems. For example, the schedule of a day can be confirmed by a personal computer in the office of the user, and is processed by a car navigation system when the user moves in a car. When the user get off the car and is visiting a customer, schedule information is presented through a portable phone and a PDA. These processes are performed by transmitting and receiving one schedule file.

When a schedule script is stored in the center 60, the data of the schedule script can be downloaded from the center 60 each time an appliance for presenting a schedule is changed. In addition, without the center 60, the schedule management can continue only by

transmitting and receiving the data of the schedule script through a storage medium, infrared communications, etc.

On the other hand, since a schedule can be managed according to instructions, the contents of a process  
 5 is clearly indicated, and can be easily changed. Furthermore, a schedule can be presented and an action can be suggested and taken based on the situation at an appropriate timing.

In addition, it is possible for a user to virtually  
 10 experience a schedule in a simulation mode. For example, a user can experience the schedule of talent with the time sped up, etc.

Thus, a schedule script can be easily generated and edited using the existing text editor, etc., and  
 15 the generated schedule script can be provided as a center service. Therefore, a user can obtain various schedule information at any location through a network.

#### <Generating and editing a schedule script>

Described below is the process of generating and  
 20 editing a schedule script. Since a schedule script can be described in a markup language, it can be edited by a normal text editor, and can also be easily generated and edited by generating the schedule script through a GUI (graphical user interface) using a map, a calendar,  
 25 a time schedule table.

A method of generating and editing a schedule script can be realized using the technology disclosed by, for example, Japanese Patent Application No.11-113191 'GUIDANCE INFORMATION PRESENTATION APPARATUS, GUIDANCE  
5 INFORMATION PRESENTING METHOD, STORAGE MEDIUM STORING GUIDANCE INFORMATION PRESENTATION PROGRAM, STORAGE MEDIUM FOR GUIDING SCRIPT, GUIDING SCRIPT GENERATION APPARATUS, OPERATION MANAGEMENT APPARATUS, METHOD, AND STORAGE MEDIUM THEREFOR USING GUIDING SCRIPT, MOBILE  
10 TIME ADJUSTMENT APPARATUS, METHOD, AND PROGRAM STORAGE MEDIUM THEREFOR USING GUIDANCE SCRIPT, GUIDE PLAN GENERATION APPARATUS, METHOD, AND PROGRAM STORAGE MEDIUM THEREFOR, GUIDE INFORMATION PRESENTATION APPARATUS, METHOD, AND PROGRAM STORAGE MEDIUM THEREFOR'. Especially,  
15 in an example of a process described by referring to FIGS. 33 thorough 37 relating to the application, the information attached to map data, etc. can be schedule information instead of guide information. Practically, in setting a schedule corresponding to a place, facility  
20 objects in a map such as buildings, roads, etc. on the display screen of a map are specified by a user using a pointing device such as a mouse, etc., and selected schedule information is attached to the pointed position with schedule information, a menu, etc. which are input  
25 with text on a small memo screen. Furthermore, on a

day and time display screen as a calendar, a schedule table, etc., the time information about year/month/day, time, period, etc. is specified using a pointing device.

In addition, when the name of a place is directly  
 5 input and specified, candidates are retrieved from a database for the contents of the user input and presented to the user so that the user can select one of them and avoid obscure specification of a place. Furthermore, as described later, a device for automatically generating  
 10 a schedule script can be provided.

#### <Outline of schedule script>

The schedule script language according to the present embodiment is a marked descriptive language for description of a schedule script newly defined as a subset  
 15 of an extensible markup language prescribed in the W3C (World Wide Web Consortium).

In a schedule script, a set of characters enclosed by '<' and '>' such as <inst id=inst-01>, <inst>, <title>, or </title> is referred to as a tag. The tags not starting  
 20 with '</' are referred to as starting tags, and those starting with '</' are referred to as end tags. A starting tag and an end tag are used in combination such as <inst id=inst-01>, </inst> or <title>, </title>. The combination is referred to as a tag set. For example,  
 25 'id' in <inst id=inst-01> is an attribute of the tag,



and 'inst-01' is a value of an attribute.

A schedule script is described by the hierarchical structure of tag sets which are the above mentioned combinations. When there is no tag set in the portion  
 5 inside a tag set, the portion indicates the contents of the tag set. A schedule script is formed by a tag, an attribute, and the contents of a schedule script language. Assume that there is the following schedule script

```

10      <inst>
          <time> ○ </time>
          <schedule> △ </schedule>
          <info> □ </info>
      </inst>
  
```

15 Between <inst> and </inst> in the schedule script, the portion (○) enclosed by <time> and </time>, the portion (△) enclosed by <schedule> and </schedule>, and the portion (□) enclosed by <info> and </info> indicate that 'there is a schedule △ at the time ○ and the user  
 20 is informed of the information described in □ at that time'. The 'inst' indicates an instruction.

```

      <inst>
          <point> ○ </point>
          <schedule> △ </schedule>
25      <action> □ </action>
  
```

</inst>

Between <inst> and </inst> in the schedule script above, the portion (○) enclosed by <point> and </point> between <inst> and </inst>, the portion (△) enclosed by <schedule> and </schedule>, and the portion (□) enclosed by <action> and </action> indicate that 'there is a schedule △ at the place ○ and an action described in □ is taken at that place'. Thus, a schedule is described for a time condition, a place condition, or a combination of them. The schedule is described as to how the schedule is presented to the user, what action is suggested to the user, or what action is to be taken when the time condition and the place condition are satisfied.

Described below is a practical example of descriptions. First, relating to the time condition, absolute specification, relative specification, and range specification can be performed and described as follows.

<time> 12:00 </time>

This represents an absolute expression of 12:00.

<time> +5sec </time>

This represents a relative expression of 5 seconds after the previous instruction.

<time> -10min </time>

This represents a relative expression of 10 minutes before the subsequent instruction.

<time> 11:00-13:00 </time>

This represents the specification of a time in a  
5 range from 11:00 to 13:00.

As a condition with a range, a week or a day can be specified instead of a time. In addition, a periodical time condition such as 'every third day' can also be specified.

10 As for a place condition, absolute specification, relative specification, and range specification can be performed and described as follows.

<longitude> ○○ </longitude>

<latitude> ○○ </latitude>

15 The description above indicates a direct and absolute place by the coordinates of a longitude and a latitude.

<name> ○○ </name>

<address> ○○ </address>

<phone> ○○ </phone>

20 The description above indicates an indirect and absolute place by the name, address, and phone number.

<location> +1.0 km </location>

The description above indicates a relative place as 1 km subsequent to the previous point.

25 <location> -1.0 km </location>

The description above indicates a relative place as 1 km preceding the next point.

```

<name>    ○○ national park </name>
<address>  ○○ ku ○○ cho    </address>
5  <zip>    123-4567        </zip>

```

The description above indicates an indirect place range by the name, address, and post code. Normally, they are defined as child elements of <point>. It is also possible to define a range by an attribute such as <point area = "1 km">.

```

10  <route>
      <name> National Route No.1 </name>
    </route>

```

The description above indicates the specification of a route by the name.

```

<route src = "route-data.dat">
</route>

```

The description above indicates the specification of route information by the data file.

```

20  <route func = "route-function.fnc">
    </route>

```

The description above indicates the specification of route information by the function.

A schedule description describes a schedule performed when the condition is satisfied.

25

- personal schedule

<schedule> meeting </schedule>

<schedule> meeting with ○○ </schedule>

<schedule> business trip </schedule>

5      <schedule> conference </schedule>

<schedule> party </schedule>

<schedule> date </schedule>

- event information

10      <schedule> professional baseball game ○○ vs △△  
</schedule>

<schedule> □□ concert </schedule>

As for a method of presenting to a user, and a suggestion and performance of an action, the following data is input.

15      <info>

<text> ○○ </text>

<voice> ○○ </voice>

<sound> ○○ </sound>

<image> ○○ </image>

20      <video> ○○ </video>

<alarm/>

</info>

As described above, specification can be made such that character data, speech data, music data, image data,  
25      and picture data can be output, or such that an alarm

can be raised. `<alarm/>` is short for the tags of `<alarm></alarm>`. Such a short description is used when there are no contents between a start tag and an end tag. In addition, a practical action can be written

5 using an `<action>` tag.

```
<action>
```

```
    automatic rerouting
```

```
</action>
```

```
<action>
```

10 E-mail

```
</action>
```

As described above, text information is input, and the determination can be left to the application.

```
<action>
```

15 Add\_point(point1);

```
</action>
```

```
<action>
```

```
    sendmail(A, "〇〇");
```

```
</action>
```

20 In addition, as described above, the description can be made using the API (application program interface) of an application.

For an `<info>` element and an `<action>` element, some attributes are specified, for example, as follows.

25 `<info delay="-5min">`

As described above, the starting time for outputting information is specified. In this example, the information is output 5 minutes before the schedule is performed.

5       <info duration="1min">

As described above, the duration of outputting the information is specified. In this example, the information is presented for 1 minute.

          <info times="5">

10       As described above, the times of outputting the information is specified. In this example, the information is presented 5 times.

[Example of Description of Schedule Script]

Described below is a practical example of the  
15       schedule script described in the schedule script language.

          <<Example 1>>

<schedulescript version = "0.1">

          <inst>

              <time> 6/2 </time>

20       <schedule>business trip (Nagoya) </schedule>

              <info delay = "-1 day">

                  <alarm/>

                  <text> Be ready for the business trip  
to Nagoya tomorrow. </text>

25       </info>

```

        <action> obtain a set of tickets of Shinkansen
    </action>
    </inst>

```

```

5      <inst>
        <point>
            <name> Shinjuku </name>
        </point>
        <schedule> buy a roll of film </schedule>
10     <info>
            <alarm/>
            <text> buy a roll of film </text>
        </info>
    </inst>

```

```

15     <inst>
        <time> 12:00-13:00 </time>
        <point>
            <name> Nagoya </name>
20     </point>
        <schedule> Eat misokatu </schedule>
        <info>
            <text> Eat misokatu </text>
            <image src="misokatu-img.gif"/>
25     </info>

```



```
</inst>
```

```
<inst>
```

```
<time> 10:00-18:00 </time>
```

5

```
<point>
```

```
<name> Tokyo Station </name>
```

```
</point>
```

```
<schedule> Buy a book △△ </schedule>
```

```
<info>
```

10

```
<text> Buy a book △△ </text>
```

```
<image
```

```
src="nanaesubookcenter-map.gif"/>
```

```
</info>
```

```
</inst>
```

15

```
</schedulescript>
```

In this example, the following schedules are described.

- Raising the alarm, displaying the schedule, and suggesting and performing an action of 'obtaining a set of tickets' one day before June 2;

- Raising the alarm, and displaying the schedule of 'buying a roll of film' at Shinjuku.

- Displaying the schedule of 'Eating misokatu', and presenting the picture of misokatu at 12:00 to 13:00 in Nagoya; and

25

- At Tokyo station at 10:00 to 18:00, displaying the schedule of 'buying the book △△', and presenting the picture of the map to the book store (nanaesu book center). When the time and position conditions are

5 satisfied, the schedule is performed.

<<Example 2>>

<schedulescript version = "0.2">

<head>

<title> Healthy Day Plan </title>

10 <author> Ministry of Welfare </author>

<date> 2000/01/01 </date>

<duration> 24 hour </duration>

</head>

15 <body>

<inst ref = "inst-Getting up"> </inst>

<inst ref = "inst-Radio Exercise"> </inst>

<inst ref = "inst-Breakfast"> </inst>

<inst ref = "inst-Toilet"> </inst>

20 ...

...

...

</body>

25 <inst id = "inst-Getting up">

```

        <time> 6:00 </time>
        <schedule> Getting up </schedule>
        <info>
            <alarm/>
5            <voice> Get up! </voice>
        </info>
    </inst>

    <inst id = "inst-Radio Exercise">
10        <time> 6:30 </time>
        <schedule> Radio Exercise </schedule>
        <info>
            <sound src="radio-gim.au"/>
        </info>
15    </inst>

    <inst id = "inst-Breakfast">
        <time> 7:00-7:30 </time>
        <schedule> Breakfast </schedule>
20        <info>
            <url> http://www.mhw.go.jp/
                today-menu/ </url>
        </info>
    </inst>
25

```

```

    <inst id = "inst-Toilet">
        <point>
            <category> toilet </category>
        </point>
5      <info>
            <voice> Let's wash hands
                with soap. </voice>
        </info>
    </inst>
10    ...
        ...
        ...
</schedulescript>

```

In this example, a schedule for a healthy life is  
 15 described. According to the model schedule, a user can  
 live a healthy life. The outline of the entire schedule  
 such as the title, the version, etc. of the schedule  
 script is described by <head></head>. The instructions  
 defined by the schedule script are specified by  
 20 <body></body>. In this example, a reference is used  
 as an instruction, and the descriptions of and subsequent  
 to </body> specify the contents of each instruction.

Otherwise, for example, when 'the ○× Exhibition  
 is held in Ikebukuro until June, and there are free passes.  
 25 However, since the user is not willing to visit there

all the way with the fare be borne by the user, he or she will visit there if there arises something to be done in Ikebukuro,' the following instruction can be written by a schedule script.

```

5  <inst>
      <point>
          <name> Ikebukuro </name>
      </point>
      <time> June </time>
10  <schedule> ○× Exhibition </schedule>
      <info>
          <text> ○× Exhibition
              at △△ department store</text>
      </info>
15  <schedule>
</inst>

```

When there is an event limited in period, and a user has something else to be done near the place where the exhibition is held, the description above can be effective. For example, there can be a schedule such as a bargain sale, a free market, a festival, an exhibition, going to a friend's to check how children are doing, saying hello to a customer to whom a salesman is grateful, etc.

25 Since a relative and periodical schedules can be

described, a schedule of 'Let's go to the barber's.'  
 can be suggested and described. Such a periodical  
 schedule is generated by the function of automatically  
 generating a schedule script, and can be automatically  
 5 added to a script upon detection of the cycle of an action.

[Example of converting a schedule script into  
 structured data for schedule management]

The above mentioned schedule script can be once  
 converted into a form easily processed by an available  
 10 terminal by the schedule conversion unit 12. A converting  
 method can be, for example, representing a tree structure  
 as is as a structure. The portion of the title of the  
 schedule script of the above mentioned <<Example 2>>  
 can be represented as follows.

15       schedulescript.head.title = healthy day plan.

In addition, time-processed schedules and  
 place-processed schedules can be separately managed,  
 or a schedule management can be performed by converting  
 a schedule into an easily processed form.

20       Described below is an example of a further  
 practically converting process. Assume that there is  
 the following schedule script.

<<Example 3>>

25       <schedulescript version = "0.1">

```

    <inst>
        <point>
            <name> Tokyo Station </name>
        </point>
5      <schedule> Buying 'Ningyouyaki' which is an
      item specific to Tokyo </schedule>
        <info>
            <text> Buy 'Ningyouyaki' which is an item
      specific to Tokyo. </text>
10     <image src="tokyo-station.gif"/>
        </info>
    </inst>

    <inst>
15     <time val="once"> 10:00-18:00 </time>
        <point>
            <name> Tokyo Nanaesu Book Center </name>
        </point>
        <schedule> Buy a book △△ </schedule>
20     <info area="200 m">
            <text> Buy a book △△ </text>
            <image src=nanaesubookcenter-map.gif/>
        </info>
    </inst>
25

```

```

    <inst>
        <time val="continue"> 11:00-12:00 </time>
        <schedule> Meeting at Company A (in Shinjuku)
    </schedule>
5        <info delay="-30min">
            <alarm/>
            <text> There is a meeting at Company A
in Shinjuku 30 minutes later. </text>
            <voice> There is a meeting at Company
10 A in Shinjuku 30 minutes later. </voice>
            <image src="Map to Company A.gif"/>
        </info>
        <info delay="-5min">
            <text> There is a meeting at Company A
15 in Shinjuku 5 minutes later. </text>
            <voice> There is a meeting at Company
A in Shinjuku 5 minutes later. </voice>
            <image src="Building of Company A.gif"/>
        </info>
20 </inst>

    <inst>
        <time val="continue"> 15:00-17:00 </time>
        <schedule> Conference (Office) </schedule>
25 <info delay="-30min">

```

11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90  
 91  
 92  
 93  
 94  
 95  
 96  
 97  
 98  
 99  
 100  
 101  
 102  
 103  
 104  
 105  
 106  
 107  
 108  
 109  
 110  
 111  
 112  
 113  
 114  
 115  
 116  
 117  
 118  
 119  
 120  
 121  
 122  
 123  
 124  
 125  
 126  
 127  
 128  
 129  
 130  
 131  
 132  
 133  
 134  
 135  
 136  
 137  
 138  
 139  
 140  
 141  
 142  
 143  
 144  
 145  
 146  
 147  
 148  
 149  
 150  
 151  
 152  
 153  
 154  
 155  
 156  
 157  
 158  
 159  
 160  
 161  
 162  
 163  
 164  
 165  
 166  
 167  
 168  
 169  
 170  
 171  
 172  
 173  
 174  
 175  
 176  
 177  
 178  
 179  
 180  
 181  
 182  
 183  
 184  
 185  
 186  
 187  
 188  
 189  
 190  
 191  
 192  
 193  
 194  
 195  
 196  
 197  
 198  
 199  
 200  
 201  
 202  
 203  
 204  
 205  
 206  
 207  
 208  
 209  
 210  
 211  
 212  
 213  
 214  
 215  
 216  
 217  
 218  
 219  
 220  
 221  
 222  
 223  
 224  
 225  
 226  
 227  
 228  
 229  
 230  
 231  
 232  
 233  
 234  
 235  
 236  
 237  
 238  
 239  
 240  
 241  
 242  
 243  
 244  
 245  
 246  
 247  
 248  
 249  
 250  
 251  
 252  
 253  
 254  
 255  
 256  
 257  
 258  
 259  
 260  
 261  
 262  
 263  
 264  
 265  
 266  
 267  
 268  
 269  
 270  
 271  
 272  
 273  
 274  
 275  
 276  
 277  
 278  
 279  
 280  
 281  
 282  
 283  
 284  
 285  
 286  
 287  
 288  
 289  
 290  
 291  
 292  
 293  
 294  
 295  
 296  
 297  
 298  
 299  
 300  
 301  
 302  
 303  
 304  
 305  
 306  
 307  
 308  
 309  
 310  
 311  
 312  
 313  
 314  
 315  
 316  
 317  
 318  
 319  
 320  
 321  
 322  
 323  
 324  
 325  
 326  
 327  
 328  
 329  
 330  
 331  
 332  
 333  
 334  
 335  
 336  
 337  
 338  
 339  
 340  
 341  
 342  
 343  
 344  
 345  
 346  
 347  
 348  
 349  
 350  
 351  
 352  
 353  
 354  
 355  
 356  
 357  
 358  
 359  
 360  
 361  
 362  
 363  
 364  
 365  
 366  
 367  
 368  
 369  
 370  
 371  
 372  
 373  
 374  
 375  
 376  
 377  
 378  
 379  
 380  
 381  
 382  
 383  
 384  
 385  
 386  
 387  
 388  
 389  
 390  
 391  
 392  
 393  
 394  
 395  
 396  
 397  
 398  
 399  
 400  
 401  
 402  
 403  
 404  
 405  
 406  
 407  
 408  
 409  
 410  
 411  
 412  
 413  
 414  
 415  
 416  
 417  
 418  
 419  
 420  
 421  
 422  
 423  
 424  
 425  
 426  
 427  
 428  
 429  
 430  
 431  
 432  
 433  
 434  
 435  
 436  
 437  
 438  
 439  
 440  
 441  
 442  
 443  
 444  
 445  
 446  
 447  
 448  
 449  
 450  
 451  
 452  
 453  
 454  
 455  
 456  
 457  
 458  
 459  
 460  
 461  
 462  
 463  
 464  
 465  
 466  
 467  
 468  
 469  
 470  
 471  
 472  
 473  
 474  
 475  
 476  
 477  
 478  
 479  
 480  
 481  
 482  
 483  
 484  
 485  
 486  
 487  
 488  
 489  
 490  
 491  
 492  
 493  
 494  
 495  
 496  
 497  
 498  
 499  
 500  
 501  
 502  
 503  
 504  
 505  
 506  
 507  
 508  
 509  
 510  
 511  
 512  
 513  
 514  
 515  
 516  
 517  
 518  
 519  
 520  
 521  
 522  
 523  
 524  
 525  
 526  
 527  
 528  
 529  
 530  
 531  
 532  
 533  
 534  
 535  
 536  
 537  
 538  
 539  
 540  
 541  
 542  
 543  
 544  
 545  
 546  
 547  
 548  
 549  
 550  
 551  
 552  
 553  
 554  
 555  
 556  
 557  
 558  
 559  
 560  
 561  
 562  
 563  
 564  
 565  
 566  
 567  
 568  
 569  
 570  
 571  
 572  
 573  
 574  
 575  
 576  
 577  
 578  
 579  
 580  
 581  
 582  
 583  
 584  
 585  
 586  
 587  
 588  
 589  
 590  
 591  
 592  
 593  
 594  
 595  
 596  
 597  
 598  
 599  
 600  
 601  
 602  
 603  
 604  
 605  
 606  
 607  
 608  
 609  
 610  
 611  
 612  
 613  
 614  
 615  
 616  
 617  
 618  
 619  
 620  
 621  
 622  
 623  
 624  
 625  
 626  
 627  
 628  
 629  
 630  
 631  
 632  
 633  
 634  
 635  
 636  
 637  
 638  
 639  
 640  
 641  
 642  
 643  
 644  
 645  
 646  
 647  
 648  
 649  
 650  
 651  
 652  
 653  
 654  
 655  
 656  
 657  
 658  
 659  
 660  
 661  
 662  
 663  
 664  
 665  
 666  
 667  
 668  
 669  
 670  
 671  
 672  
 673  
 674  
 675  
 676  
 677  
 678  
 679  
 680  
 681  
 682  
 683  
 684  
 685  
 686  
 687  
 688  
 689  
 690  
 691  
 692  
 693  
 694  
 695  
 696  
 697  
 698  
 699  
 700  
 701  
 702  
 703  
 704  
 705  
 706  
 707  
 708  
 709  
 710  
 711  
 712  
 713  
 714  
 715  
 716  
 717  
 718  
 719  
 720  
 721  
 722  
 723  
 724  
 725  
 726  
 727  
 728  
 729  
 730  
 731  
 732  
 733  
 734  
 735  
 736  
 737  
 738  
 739  
 740  
 741  
 742  
 743  
 744  
 745  
 746  
 747  
 748  
 749  
 750  
 751  
 752  
 753  
 754  
 755  
 756  
 757  
 758  
 759  
 760  
 761  
 762  
 763  
 764  
 765  
 766  
 767  
 768  
 769  
 770  
 771  
 772  
 773  
 774  
 775  
 776  
 777  
 778  
 779  
 780  
 781  
 782  
 783  
 784  
 785  
 786  
 787  
 788  
 789  
 790  
 791  
 792  
 793  
 794  
 795  
 796  
 797  
 798  
 799  
 800  
 801  
 802  
 803  
 804  
 805  
 806  
 807  
 808  
 809  
 810  
 811  
 812  
 813  
 814  
 815  
 816  
 817  
 818  
 819  
 820  
 821  
 822  
 823  
 824  
 825  
 826  
 827  
 828  
 829  
 830  
 831  
 832  
 833  
 834  
 835  
 836  
 837  
 838  
 839  
 840  
 841  
 842  
 843  
 844  
 845  
 846  
 847  
 848  
 849  
 850  
 851  
 852  
 853  
 854  
 855  
 856  
 857  
 858  
 859  
 860  
 861  
 862  
 863  
 864  
 865  
 866  
 867  
 868  
 869  
 870  
 871  
 872  
 873  
 874  
 875  
 876  
 877  
 878  
 879  
 880  
 881  
 882  
 883  
 884  
 885  
 886  
 887  
 888  
 889  
 890  
 891  
 892  
 893  
 894  
 895  
 896  
 897  
 898  
 899  
 900  
 901  
 902  
 903  
 904  
 905  
 906  
 907  
 908  
 909  
 910  
 911  
 912  
 913  
 914  
 915  
 916  
 917  
 918  
 919  
 920  
 921  
 922  
 923  
 924  
 925  
 926  
 927  
 928  
 929  
 930  
 931  
 932  
 933  
 934  
 935  
 936  
 937  
 938  
 939  
 940  
 941  
 942  
 943  
 944  
 945  
 946  
 947  
 948  
 949  
 950  
 951  
 952  
 953  
 954  
 955  
 956  
 957  
 958  
 959  
 960  
 961  
 962  
 963  
 964  
 965  
 966  
 967  
 968  
 969  
 970  
 971  
 972  
 973  
 974  
 975  
 976  
 977  
 978  
 979  
 980  
 981  
 982  
 983  
 984  
 985  
 986  
 987  
 988  
 989  
 990  
 991  
 992  
 993  
 994  
 995  
 996  
 997  
 998  
 999  
 1000  
 1001  
 1002  
 1003  
 1004  
 1005  
 1006  
 1007  
 1008  
 1009  
 1010  
 1011  
 1012  
 1013  
 1014  
 1015  
 1016  
 1017  
 1018  
 1019  
 1020  
 1021  
 1022  
 1023  
 1024  
 1025  
 1026  
 1027  
 1028  
 1029  
 1030  
 1031  
 1032  
 1033  
 1034  
 1035  
 1036  
 1037  
 1038  
 1039  
 1040  
 1041  
 1042  
 1043  
 1044  
 1045  
 1046  
 1047  
 1048  
 1049  
 1050  
 1051  
 1052  
 1053  
 1054  
 1055  
 1056  
 1057  
 1058  
 1059  
 1060  
 1061  
 1062  
 1063  
 1064  
 1065  
 1066  
 1067  
 1068  
 1069  
 1070  
 1071  
 1072  
 1073  
 1074  
 1075  
 1076  
 1077  
 1078  
 1079  
 1080  
 1081  
 1082  
 1083  
 1084  
 1085  
 1086  
 1087  
 1088  
 1089  
 1090  
 1091  
 1092  
 1093  
 1094  
 1095  
 1096  
 1097  
 1098  
 1099  
 1100  
 1101  
 1102  
 1103  
 1104  
 1105  
 1106  
 1107  
 1108  
 1109  
 1110  
 1111  
 1112  
 1113  
 1114  
 1115  
 1116  
 1117  
 1118  
 1119  
 1120  
 1121  
 1122  
 1123  
 1124  
 1125  
 1126  
 1127  
 1128  
 1129  
 1130  
 1131  
 1132  
 1133  
 1134  
 1135  
 1136  
 1137  
 1138  
 1139  
 1140  
 1141  
 1142  
 1143  
 1144  
 1145  
 1146  
 1147  
 1148  
 1149  
 1150  
 1151  
 1152  
 1153  
 1154  
 1155  
 1156  
 1157  
 1158  
 1159  
 1160  
 1161  
 1162  
 1163  
 1164  
 1165  
 1166  
 1167  
 1168  
 1169  
 1170  
 1171  
 1172  
 1173  
 1174  
 1175  
 1176  
 1177  
 1178  
 1179  
 1180  
 1181  
 1182  
 1183  
 1184  
 1185  
 1186  
 1187  
 1188  
 1189  
 1190  
 1191  
 1192  
 1193  
 1194  
 1195  
 1196  
 1197  
 1198  
 1199  
 1200  
 1201  
 1202  
 1203  
 1204  
 1205  
 1206  
 1207  
 1208  
 1209  
 1210  
 1211  
 1212  
 1213  
 1214  
 1215  
 1216  
 1217  
 1218  
 1219  
 1220  
 1221  
 1222  
 1223  
 1224  
 1225  
 1226  
 1227  
 1228  
 1229  
 1230  
 1231  
 1232  
 1233  
 1234  
 1235  
 1236  
 1237  
 1238  
 1239  
 1240  
 1241  
 1242  
 1243  
 1244  
 1245  
 1246  
 1247  
 1248  
 1249  
 1250  
 1251  
 1252  
 1253  
 1254  
 1255  
 1256  
 1257  
 1258  
 1259  
 1260  
 1261  
 1262  
 1263  
 1264  
 1265  
 1266  
 1267  
 1268  
 1269  
 1270  
 1271  
 1272  
 1273  
 1274  
 1275  
 1276  
 1277  
 1278  
 1279  
 1280  
 1281  
 1282  
 1283  
 1284  
 1285  
 1286  
 1287  
 1288  
 1289  
 1290  
 1291  
 1292  
 1293  
 1294  
 1295  
 1296  
 1297  
 1298  
 1299  
 1300  
 1301  
 1302  
 1303  
 1304  
 1305  
 1306  
 1307  
 1308  
 1309  
 1310  
 1311  
 1312  
 1313  
 1314  
 1315  
 1316  
 1317  
 1318  
 1319  
 1320  
 1321  
 1322  
 1323  
 1324  
 1325  
 1326  
 1327  
 1328  
 1329  
 1330  
 1331  
 1332  
 1333  
 1334  
 1335  
 1336  
 1337  
 1338  
 1339  
 1340  
 1341  
 1342  
 1343  
 1344  
 1345  
 1346  
 1347  
 1348  
 1349  
 1350  
 1351  
 1352  
 1353  
 1354  
 1355  
 1356  
 1357  
 1358  
 1359  
 1360  
 1361  
 1362  
 1363  
 1364  
 1365  
 1366  
 1367  
 1368  
 1369  
 1370  
 1371  
 1372  
 1373  
 1374  
 1375  
 1376  
 1377  
 1378  
 1379  
 1380  
 1381  
 1382  
 1383  
 1384  
 1385  
 1386  
 1387  
 1388  
 1389  
 1390  
 1391  
 1392  
 1393  
 1394  
 1395  
 1396  
 1397  
 1398  
 1399  
 1400  
 1401  
 1402  
 1403  
 1404  
 1405  
 1406  
 1407  
 1408  
 1409  
 1410  
 1411  
 1412  
 1413  
 1414  
 1415  
 1416  
 1417  
 1418  
 1419  
 1420  
 1421  
 1422  
 1423  
 1424  
 1425  
 1426  
 1427  
 1428  
 1429  
 1430  
 1431  
 1432  
 1433  
 1434  
 1435  
 1436  
 1437  
 1438  
 1439  
 1440  
 1441  
 1442  
 1443  
 1444  
 1445  
 1446  
 1447  
 1448  
 1449  
 1450  
 1451  
 1452  
 1453  
 1454  
 1455



```

        <alarm/>
        <text> There is a conference in the office
30 minutes later. </text>
    </info>
5    <info delay="-5min">
        <alarm/>
        <text> If you cannot be in time, make
a call. </text>
    </info>
10   </inst>

    <inst>
        <point>
            <name> Shinjuku </name>
15   </point>
        <schedule> buy a roll of film </schedule>
        <info>
            <alarm/>
            <text> buy a roll of film </text>
20   </info>
    </inst>

    <inst>
        <time val="continue"> 12:00-13:00 </time>
25   <point>

```

11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90  
 91  
 92  
 93  
 94  
 95  
 96  
 97  
 98  
 99  
 100  
 101  
 102  
 103  
 104  
 105  
 106  
 107  
 108  
 109  
 110  
 111  
 112  
 113  
 114  
 115  
 116  
 117  
 118  
 119  
 120  
 121  
 122  
 123  
 124  
 125  
 126  
 127  
 128  
 129  
 130  
 131  
 132  
 133  
 134  
 135  
 136  
 137  
 138  
 139  
 140  
 141  
 142  
 143  
 144  
 145  
 146  
 147  
 148  
 149  
 150  
 151  
 152  
 153  
 154  
 155  
 156  
 157  
 158  
 159  
 160  
 161  
 162  
 163  
 164  
 165  
 166  
 167  
 168  
 169  
 170  
 171  
 172  
 173  
 174  
 175  
 176  
 177  
 178  
 179  
 180  
 181  
 182  
 183  
 184  
 185  
 186  
 187  
 188  
 189  
 190  
 191  
 192  
 193  
 194  
 195  
 196  
 197  
 198  
 199  
 200  
 201  
 202  
 203  
 204  
 205  
 206  
 207  
 208  
 209  
 210  
 211  
 212  
 213  
 214  
 215  
 216  
 217  
 218  
 219  
 220  
 221  
 222  
 223  
 224  
 225  
 226  
 227  
 228  
 229  
 230  
 231  
 232  
 233  
 234  
 235  
 236  
 237  
 238  
 239  
 240  
 241  
 242  
 243  
 244  
 245  
 246  
 247  
 248  
 249  
 250  
 251  
 252  
 253  
 254  
 255  
 256  
 257  
 258  
 259  
 260  
 261  
 262  
 263  
 264  
 265  
 266  
 267  
 268  
 269  
 270  
 271  
 272  
 273  
 274  
 275  
 276  
 277  
 278  
 279  
 280  
 281  
 282  
 283  
 284  
 285  
 286  
 287  
 288  
 289  
 290  
 291  
 292  
 293  
 294  
 295  
 296  
 297  
 298  
 299  
 300  
 301  
 302  
 303  
 304  
 305  
 306  
 307  
 308  
 309  
 310  
 311  
 312  
 313  
 314  
 315  
 316  
 317  
 318  
 319  
 320  
 321  
 322  
 323  
 324  
 325  
 326  
 327  
 328  
 329  
 330  
 331  
 332  
 333  
 334  
 335  
 336  
 337  
 338  
 339  
 340  
 341  
 342  
 343  
 344  
 345  
 346  
 347  
 348  
 349  
 350  
 351  
 352  
 353  
 354  
 355  
 356  
 357  
 358  
 359  
 360  
 361  
 362  
 363  
 364  
 365  
 366  
 367  
 368  
 369  
 370  
 371  
 372  
 373  
 374  
 375  
 376  
 377  
 378  
 379  
 380  
 381  
 382  
 383  
 384  
 385  
 386  
 387  
 388  
 389  
 390  
 391  
 392  
 393  
 394  
 395  
 396  
 397  
 398  
 399  
 400  
 401  
 402  
 403  
 404  
 405  
 406  
 407  
 408  
 409  
 410  
 411  
 412  
 413  
 414  
 415  
 416  
 417  
 418  
 419  
 420  
 421  
 422  
 423  
 424  
 425  
 426  
 427  
 428  
 429  
 430  
 431  
 432  
 433  
 434  
 435  
 436  
 437  
 438  
 439  
 440  
 441  
 442  
 443  
 444  
 445  
 446  
 447  
 448  
 449  
 450  
 451  
 452  
 453  
 454  
 455  
 456  
 457  
 458  
 459  
 460  
 461  
 462  
 463  
 464  
 465  
 466  
 467  
 468  
 469  
 470  
 471  
 472  
 473  
 474  
 475  
 476  
 477  
 478  
 479  
 480  
 481  
 482  
 483  
 484  
 485  
 486  
 487  
 488  
 489  
 490  
 491  
 492  
 493  
 494  
 495  
 496  
 497  
 498  
 499  
 500  
 501  
 502  
 503  
 504  
 505  
 506  
 507  
 508  
 509  
 510  
 511  
 512  
 513  
 514  
 515  
 516  
 517  
 518  
 519  
 520  
 521  
 522  
 523  
 524  
 525  
 526  
 527  
 528  
 529  
 530  
 531  
 532  
 533  
 534  
 535  
 536  
 537  
 538  
 539  
 540  
 541  
 542  
 543  
 544  
 545  
 546  
 547  
 548  
 549  
 550  
 551  
 552  
 553  
 554  
 555  
 556  
 557  
 558  
 559  
 560  
 561  
 562  
 563  
 564  
 565  
 566  
 567  
 568  
 569  
 570  
 571  
 572  
 573  
 574  
 575  
 576  
 577  
 578  
 579  
 580  
 581  
 582  
 583  
 584  
 585  
 586  
 587  
 588  
 589  
 590  
 591  
 592  
 593  
 594  
 595  
 596  
 597  
 598  
 599  
 600  
 601  
 602  
 603  
 604  
 605  
 606  
 607  
 608  
 609  
 610  
 611  
 612  
 613  
 614  
 615  
 616  
 617  
 618  
 619  
 620  
 621  
 622  
 623  
 624  
 625  
 626  
 627  
 628  
 629  
 630  
 631  
 632  
 633  
 634  
 635  
 636  
 637  
 638  
 639  
 640  
 641  
 642  
 643  
 644  
 645  
 646  
 647  
 648  
 649  
 650  
 651  
 652  
 653  
 654  
 655  
 656  
 657  
 658  
 659  
 660  
 661  
 662  
 663  
 664  
 665  
 666  
 667  
 668  
 669  
 670  
 671  
 672  
 673  
 674  
 675  
 676  
 677  
 678  
 679  
 680  
 681  
 682  
 683  
 684  
 685  
 686  
 687  
 688  
 689  
 690  
 691  
 692  
 693  
 694  
 695  
 696  
 697  
 698  
 699  
 700  
 701  
 702  
 703  
 704  
 705  
 706  
 707  
 708  
 709  
 710  
 711  
 712  
 713  
 714  
 715  
 716  
 717  
 718  
 719  
 720  
 721  
 722  
 723  
 724  
 725  
 726  
 727  
 728  
 729  
 730  
 731  
 732  
 733  
 734  
 735  
 736  
 737  
 738  
 739  
 740  
 741  
 742  
 743  
 744  
 745  
 746  
 747  
 748  
 749  
 750  
 751  
 752  
 753  
 754  
 755  
 756  
 757  
 758  
 759  
 760  
 761  
 762  
 763  
 764  
 765  
 766  
 767  
 768  
 769  
 770  
 771  
 772  
 773  
 774  
 775  
 776  
 777  
 778  
 779  
 780  
 781  
 782  
 783  
 784  
 785  
 786  
 787  
 788  
 789  
 790  
 791  
 792  
 793  
 794  
 795  
 796  
 797  
 798  
 799  
 800  
 801  
 802  
 803  
 804  
 805  
 806  
 807  
 808  
 809  
 810  
 811  
 812  
 813  
 814  
 815  
 816  
 817  
 818  
 819  
 820  
 821  
 822  
 823  
 824  
 825  
 826  
 827  
 828  
 829  
 830  
 831  
 832  
 833  
 834  
 835  
 836  
 837  
 838  
 839  
 840  
 841  
 842  
 843  
 844  
 845  
 846  
 847  
 848  
 849  
 850  
 851  
 852  
 853  
 854  
 855  
 856  
 857  
 858  
 859  
 860  
 861  
 862  
 863  
 864  
 865  
 866  
 867  
 868  
 869  
 870  
 871  
 872  
 873  
 874  
 875  
 876  
 877  
 878  
 879  
 880  
 881  
 882  
 883  
 884  
 885  
 886  
 887  
 888  
 889  
 890  
 891  
 892  
 893  
 894  
 895  
 896  
 897  
 898  
 899  
 900  
 901  
 902  
 903  
 904  
 905  
 906  
 907  
 908  
 909  
 910  
 911  
 912  
 913  
 914  
 915  
 916  
 917  
 918  
 919  
 920  
 921  
 922  
 923  
 924  
 925  
 926  
 927  
 928  
 929  
 930  
 931  
 932  
 933  
 934  
 935  
 936  
 937  
 938  
 939  
 940  
 941  
 942  
 943  
 944  
 945  
 946  
 947  
 948  
 949  
 950  
 951  
 952  
 953  
 954  
 955  
 956  
 957  
 958  
 959  
 960  
 961  
 962  
 963  
 964  
 965  
 966  
 967  
 968  
 969  
 970  
 971  
 972  
 973  
 974  
 975  
 976  
 977  
 978  
 979  
 980  
 981  
 982  
 983  
 984  
 985  
 986  
 987  
 988  
 989  
 990  
 991  
 992  
 993  
 994  
 995  
 996  
 997  
 998  
 999  
 1000  
 1001  
 1002  
 1003  
 1004  
 1005  
 1006  
 1007  
 1008  
 1009  
 1010  
 1011  
 1012  
 1013  
 1014  
 1015  
 1016  
 1017  
 1018  
 1019  
 1020  
 1021  
 1022  
 1023  
 1024  
 1025  
 1026  
 1027  
 1028  
 1029  
 1030  
 1031  
 1032  
 1033  
 1034  
 1035  
 1036  
 1037  
 1038  
 1039  
 1040  
 1041  
 1042  
 1043  
 1044  
 1045  
 1046  
 1047  
 1048  
 1049  
 1050  
 1051  
 1052  
 1053  
 1054  
 1055  
 1056  
 1057  
 1058  
 1059  
 1060  
 1061  
 1062  
 1063  
 1064  
 1065  
 1066  
 1067  
 1068  
 1069  
 1070  
 1071  
 1072  
 1073  
 1074  
 1075  
 1076  
 1077  
 1078  
 1079  
 1080  
 1081  
 1082  
 1083  
 1084  
 1085  
 1086  
 1087  
 1088  
 1089  
 1090  
 1091  
 1092  
 1093  
 1094  
 1095  
 1096  
 1097  
 1098  
 1099  
 1100  
 1101  
 1102  
 1103  
 1104  
 1105  
 1106  
 1107  
 1108  
 1109  
 1110  
 1111  
 1112  
 1113  
 1114  
 1115  
 1116  
 1117  
 1118  
 1119  
 1120  
 1121  
 1122  
 1123  
 1124  
 1125  
 1126  
 1127  
 1128  
 1129  
 1130  
 1131  
 1132  
 1133  
 1134  
 1135  
 1136  
 1137  
 1138  
 1139  
 1140  
 1141  
 1142  
 1143  
 1144  
 1145  
 1146  
 1147  
 1148  
 1149  
 1150  
 1151  
 1152  
 1153  
 1154  
 1155  
 1156  
 1157  
 1158  
 1159  
 1160  
 1161  
 1162  
 1163  
 1164  
 1165  
 1166  
 1167  
 1168  
 1169  
 1170  
 1171  
 1172  
 1173  
 1174  
 1175  
 1176  
 1177  
 1178  
 1179  
 1180  
 1181  
 1182  
 1183  
 1184  
 1185  
 1186  
 1187  
 1188  
 1189  
 1190  
 1191  
 1192  
 1193  
 1194  
 1195  
 1196  
 1197  
 1198  
 1199  
 1200  
 1201  
 1202  
 1203  
 1204  
 1205  
 1206  
 1207  
 1208  
 1209  
 1210  
 1211  
 1212  
 1213  
 1214  
 1215  
 1216  
 1217  
 1218  
 1219  
 1220  
 1221  
 1222  
 1223  
 1224  
 1225  
 1226  
 1227  
 1228  
 1229  
 1230  
 1231  
 1232  
 1233  
 1234  
 1235  
 1236  
 1237  
 1238  
 1239  
 1240  
 1241  
 1242  
 1243  
 1244  
 1245  
 1246  
 1247  
 1248  
 1249  
 1250  
 1251  
 1252  
 1253  
 1254  
 1255  
 1256  
 1257  
 1258  
 1259  
 1260  
 1261  
 1262  
 1263  
 1264  
 1265  
 1266  
 1267  
 1268  
 1269  
 1270  
 1271  
 1272  
 1273  
 1274  
 1275  
 1276  
 1277  
 1278  
 1279  
 1280  
 1281  
 1282  
 1283  
 1284  
 1285  
 1286  
 1287  
 1288  
 1289  
 1290  
 1291  
 1292  
 1293  
 1294  
 1295  
 1296  
 1297  
 1298  
 1299  
 1300  
 1301  
 1302  
 1303  
 1304  
 1305  
 1306  
 1307  
 1308  
 1309  
 1310  
 1311  
 1312  
 1313  
 1314  
 1315  
 1316  
 1317  
 1318  
 1319  
 1320  
 1321  
 1322  
 1323  
 1324  
 1325  
 1326  
 1327  
 1328  
 1329  
 1330  
 1331  
 1332  
 1333  
 1334  
 1335  
 1336  
 1337  
 1338  
 1339  
 1340  
 1341  
 1342  
 1343  
 1344  
 1345  
 1346  
 1347  
 1348  
 1349  
 1350  
 1351  
 1352  
 1353  
 1354  
 1355  
 1356  
 1357  
 1358  
 1359  
 1360  
 1361  
 1362  
 1363  
 1364  
 1365  
 1366  
 1367  
 1368  
 1369  
 1370  
 1371  
 1372  
 1373  
 1374  
 1375  
 1376  
 1377  
 1378  
 1379  
 1380  
 1381  
 1382  
 1383  
 1384  
 1385  
 1386  
 1387  
 1388  
 1389  
 1390  
 1391  
 1392  
 1393  
 1394  
 1395  
 1396  
 1397  
 1398  
 1399  
 1400  
 1401  
 1402  
 1403  
 1404  
 1405  
 1406  
 1407  
 1408  
 1409  
 1410  
 1411  
 1412  
 1413  
 1414  
 1415  
 1416  
 1417  
 1418  
 1419  
 1420  
 1421  
 1422  
 1423  
 1424  
 1425  
 1426  
 1427  
 1428  
 1429  
 1430  
 1431  
 1432  
 1433  
 1434  
 1435  
 1436  
 1437  
 1438  
 1439  
 1440  
 1441  
 1442  
 1443  
 1444  
 1445  
 1446  
 1447  
 1448  
 1449  
 1450  
 1451  
 1452  
 1453  
 1454  
 1455  
 1456  
 1457  
 1458  
 1459  
 1460  
 1461  
 1462  
 1463  
 1464  
 1

```

        <name> Ginza </name>
    </point>
    <schedule> Go to the topical restaurant X.
</schedule>
5      <info>
        <alarm/>
        <text> Go to the topical restaurant
X. </text>
        </info>
10     </inst>
</schedulescript>

```

In a schedule script, there can be an action 'continue' to be continuously performed during a period and an action 'once' to be performed only once during the period even if a time condition is specified by <time>.

In the above mentioned schedule script, these actions are distinguished from each other using the val=continue and val=once of <time>.

20 When a user specifies a period to display the schedule of the corresponding time condition, the schedule is displayed if the condition of either 'continue' or 'once' is contained in the period.

On the other hand, in the mode in which a schedule  
25 is presented and executed depending on the actual or

virtual current time and current place, a schedule is presented and executed on the starting time of the time condition for 'continue'. For 'once', another schedule, etc. is considered under the time condition, and the  
 5 priority of presenting and performing the schedule is lowered. As a result, for example, a schedule is displayed when the user is not busy during the period specified by the time condition.

FIG. 2 shows a table of structured data obtained  
 10 by converting the schedule script. According to the schedule on the table shown in FIG. 2, the presented contents are displayed in the method of a specified form under the presentation condition when the time and the place satisfy the conditions. The data can be stored,  
 15 for example, in the following form using a structure.

```
inst[1].time = NULL;
inst[1].point = "Tokyo Station";
inst[1].schedule = "Buying 'Ningyouyaki' which is an
20 item specific to Tokyo";
inst[1].info[1].condition = NULL;
inst[1].info[1].text = "Buy 'Ningyouyaki' which is an
item specific to Tokyo.";
inst[1].info[1].image = "tokyo-station.gif";
25
```

```

inst[2].time = "10:00-18:00";
inst[2].time_var = once;
inst[2].point = "Tokyo Nanaesu Book Center"
inst[2].schedule = "Buy the book △△.";
5  inst[2].info[1].condition.area = "200m";
inst[2].info[1].text = "Buy the book △△.";
inst[2].info[1].image = "nanaesubookcenter-map.gif";

inst[3].time_var = continue;
10 inst[3].time = "11:00-12:00";
inst[3].point = NULL;
inst[3].schedule = "Meeting at Company A (Shinjuku)";
inst[3].info[1].condition.delay = "-30min";
inst[3].info[1].alarm = ON;
15 inst[3].info[1].text = "There is a meeting at Company
A in Shinjuku 30 minutes later.";
inst[3].info[1].voice = "There is a meeting at Company
A in Shinjuku 30 minutes later.";
inst[3].info[1].image = "Map to Company A.gif";
20 inst[3].info[2].condition.delay = "-5min";
inst[3].info[2].text = "There is a meeting at Company
A in Shinjuku 5 minutes later.";
inst[3].info[2].voice = "There is a meeting at Company
A in Shinjuku 5 minutes later.";
25 inst[3].info[2].image = "Building of Company A.gif";

```

```

inst[4].time_var = continue;
inst[4].time = "15:00-17:00";
inst[4].point = NULL;
5  inst[4].schedule = "Conference (Office)";
inst[4].info[1].condition.delay = "-30min";
inst[4].info[1].alarm = ON;
inst[4].info[1].text = "There is a conference in the
office 30 minutes later.";
10 inst[4].info[2].condition.delay = "-5min";
inst[4].info[2].alarm = ON;
inst[4].info[2].text = "If you cannot be in time, make
a call.";

15 inst[5].time = NULL;
inst[5].point = "Shinjuku";
inst[5].schedule = "Buy a roll of film.";
inst[5].info[1].condition = NULL;
inst[5].info[1].alarm = ON;
20 inst[5].info[1].text = "Buy a roll of film.";

inst[6].time_var = once;
inst[6].time = "12:00-13:00";
inst[6].point = "Ginza";
25 inst[6].schedule = "Go to the topical restaurant X.";

```

```

inst[6].info[1].condition = NULL;
inst[6].info[1].alarm = ON;
inst[6].info[1].text = "Go to the topical restaurant
X.";

```

5

Described below is the process of each unit in the configuration example of the present invention shown in FIG. 1.

#### (1) Process of Input Unit

10 The input unit 11 obtains the schedule script stored in the center 60 and the media 50. FIG. 3 shows the process flow of the input unit 11.

When a user is requested to input an operation, or an automatic input of a schedule is requested, the center 60 is accessed by the network access unit 18 through a network 40, or the media 50 storing a schedule script is accessed by the media access unit 19, and a user-desired schedule script is read (S11). The read schedule script is passed to the schedule conversion unit 12 (S12).  
 15 At this time, the body of the schedule script is received from the media 50. However, in the script, the external image file specified using the URL (uniform resource locator) can be received from the network 40.

#### (2) Process of Schedule Conversion Unit

25 The schedule conversion unit 12 converts a schedule

script described in a markup language into structured data for schedule management for easier process by a computer, and for easier schedule management. This process is performed to improve the process efficiency of a computer, and is not required when the instruction process unit 13 directly refers to a schedule script.

FIG. 4 shows the process flow of the schedule conversion unit 12. As shown in FIG. 4, the schedule conversion unit 12 receives a schedule script from the input unit 11 (S21), converts the schedule script into the structured data for the schedule management (S22), and passes the structured data for the schedule management to the instruction process unit 13 (S23).

The schedule conversion unit 12 converts a schedule into structured data referred to by the instruction process unit 13, and can have the function of converting it into various structured data for use in this system, other device, etc. Using the function, a script is converted into a form depending on the appliances, operating systems (OS), and applications. Thus, an entire schedule, or each instruction can be provided for each appliance, application, etc.

For example, if a schedule script is converted into procedure data, an action can be suggested and performed using the technology presented by the Japanese Patent

Application No.10-24113 (Action Suggestion and Performance Apparatus using Procedure Database with Function of Automatically Generating Procedure, and Procedure Database Storage Medium Therefor).

5 In this technology, a procedure database storing a procedure defined by a set of a condition about the environmental situation such as a time, a place, a situation, etc. and an action is prepared, the environmental situation is checked to detect the condition  
 10 of retrieving a procedure database from the time, place, situation (including user-input information), etc., extract a corresponding procedure based on the condition, and pass the action of the procedure to an action suggestion and performing device. Thus, an action appropriate for  
 15 the environmental situation can be automatically suggested or performed.

In addition, the schedule conversion units 12 exchange event schedules and personal schedules with other units (friends and groups belonging to a company),  
 20 and adjust the obtained schedules and the user's schedule.

### (3) Process of Instruction Process Unit

The instruction process unit 13 supplements the information about an unspecified portion, an obscure portion, etc. for the structured data for schedule  
 25 management received from the schedule conversion unit



12, and executes an instruction described in the schedule based on the situation virtually set for the user's current situation or a simulation. The instruction process unit 13 performs the process shown in FIG. 5 as a preparatory process for the execution of an instruction, and performs the process as an executing process as shown in FIG. 6.

In the preparatory process for the instruction process unit 13, it is determined, upon receipt of the structured data for schedule management from the schedule conversion unit 12 (S31), whether the operation mode set by a user is a real mode or a simulation mode (S32) as shown in FIG. 5. When the operation mode is a real mode, the situation obtaining unit 16 obtains the situation (actual current time and current place) to obtain it for the system (S33). If the operation mode is a simulation mode, then a request to prepare for the situation is issued to the situation generation unit 17. When the preparation is completed, a request to generate the situation is issued to obtain the situation (virtual current time and current place) (S34).

Then, the information about the place in the structured data for schedule management is supplemented (S35). In the supplementing process in step S35, for example, in the various attributes relating to places

such as a latitude, a longitude, an altitude, a name, an address, a phone number, a post code, etc., an attribute not described in the schedule script is retrieved from a database unit 30 using a described attribute as a key.

5 If only an area is specified, the attribute of the typical place in the area is retrieved. For example, when only 'Shinjuku' or 'Mt. Fuji' is specified, the typical places such as 'Shinjuku Ward Hall', 'Shinjuku Station', ..., or 'thetopofMt. Fuji', 'theclimbingbaseofMt. Fuji', ...

10 are respectively retrieved from the database unit 30.

When there are a plurality of retrieval results, the user is requested to select one on the menu, or a retrieval result is selected using an appropriate evaluation index.

Then, the retrieved and selected attribute is inserted  
15 into a corresponding position in the structured data for schedule management. This function largely depends on the method of managing a system and a schedule, and providing a schedule. There can be a number of methods.

The supplementing process is performed when a user  
20 generates his or her own schedule. When a model schedule is downloaded from the center 60, since it is assumed that a schedule script which can be completely processed has already been described, it is omitted.

Then, all relative place and time specifications  
25 inthestructureddataforschedulemanagementarereplaced

with absolute place and time specifications (S36), thereby terminating the preparatory process, and passing control to the executing process.

In the executing process of the instruction process unit 13, the instruction process unit 13 first determines whether the operation mode is a real mode or a simulation mode (S41) as shown in FIG. 6. When the operation mode is a real mode, the situation obtaining unit 16 is made to obtain the situation (actual current time and current place) to obtain it for the system (S42). If the operation mode is a simulation mode, a request to generate the situation (virtual current time and current place) is issued to the situation generation unit 17 to obtain it (S43).

When the actual current time and current place (in the real mode), or the virtual current time and current place (simulation mode) match the time condition and the place condition of an instruction (S44), the information (schedule/action) to be presented to a user is passed to the schedule presentation unit 14 or the action suggestion/execution unit 15 according to the instruction (S45). The operation is repeated until the termination event occurs.

When a condition is specified in range, a process continuing while the condition is satisfied, a process

of indicating that the process is to be performed, a process of repeatedly presenting data at specified intervals, etc. can be realized. If conditions overlap, for example, presentation is performed based on the  
 5 priority, menu form, etc.

Each instruction can be deleted if it is once presented, but the settings are normally performed according to the specifications of the duration, the times, etc. which are the attributes of the tags of <info>  
 10 and <action>. When an instruction terminates after it is once presented, it can be removed after it is presented.

However, an instruction is to be presented plural times, it is deleted after being presented the plural times.

A normal time condition can be deleted after the specified  
 15 time has passed because time never goes backwards, but a place condition remains unless the place disappears.

#### (4) Process of Situation Obtaining Unit

The situation obtaining unit 16 obtains the situation such as the user's current time, current place, etc.  
 20 FIG. 7 shows the process flow of the situation obtaining unit 16. As shown in FIG. 7, upon receipt of a request to obtain the situation from the instruction process unit 13, the situation obtaining unit 16 obtains the actual current time and current place from the GPS (global  
 25 positioning system), etc., and passes them to the

instruction process unit 13 (S51).

#### (5) Process of Situation Generation Unit

The situation generation unit 17 prepares and generates necessary values in a simulation mode such as a virtual current time, a virtual current place, etc.

FIG. 8 shows the process flow of the situation preparing process of the situation generation unit 17. FIG. 9 shows the process flow of the situation generating process of the situation generation unit 17.

In the situation preparing process, upon receipt of a request to prepare for the situation from the instruction process unit 13 as shown in FIG. 8, the situation generation unit 17 sets the virtual current time to the time selected by the user or the system from among the actual current time and the time separately set by the user (S61). Then, the virtual current place is set to the point selected by the user or the system from among the actual current place, a user-separately-set position (for example, home, office, etc.), and the point appearing in the structure data of the schedule (S62).

Then, the virtual time passing speed is set to the virtual time passing speed selected by the user or the system from among the system-set default virtual time passing speed and the user-separately-set virtual time passing speed (S63). In this case, time can go not only forwards

but also backwards.

In the situation generating process, upon receipt of a request to generate the situation from the instruction process unit 13 as shown in FIG. 9, the situation generation unit 17 passes the virtual current time and the virtual current place to the instruction process unit 13 (S64), and updates the time according to the virtual current time and the virtual time passing speed (S65). The movement from a place to another is performed by updating the virtual current place (S66). For example, the user can use a mouse, etc. to intentionally move a position, specify random walking, or specify an appropriate supplement to movement between schedules, etc.

#### (6) Process of Schedule Presenting unit

The schedule presentation unit 14 presents the user with a schedule based on a schedule script. FIG. 10 shows the process flow of the schedule presentation unit 14. Upon receipt of a request to present a schedule from the instruction process unit 13, the schedule presentation unit 14 outputs the information presented by the schedule to the user (S71). The presented information are text data, image data, speech data, etc.

#### (7) Process of Action Suggestion/Execution unit

The action suggestion/execution unit 15 suggests and performs an action for a user. FIG. 11 shows the

process flow of the action suggestion/execution unit  
 15. Upon receipt of a request to suggest or perform  
 an action from the instruction process unit 13, the action  
 suggestion/execution unit 15 performs an action  
 5 suggesting/performing process (S72).

The suggestion and performance of an action refers  
 not only to present the information about a schedule,  
 but also to have the function of performing a process  
 to a certain extent. For example, if there is a schedule  
 10 of 'asking the proceeding of the current project of Mr.  
 A at 15:00', then not only the user is presented with  
 the schedule, but also the system can automatically  
 transmit to Mr. A the mail in formatted text asking the  
 proceeding of the project at 15:00.

15 In addition, when the schedule script is executed  
 in a car navigation system mounted in a car, and when  
 there is a schedule of 'visiting company B at 10:00',  
 the system can be designed such that not only the user  
 is suggested to visit Company B, but also the route set  
 20 in the car navigation system can be automatically edited  
 into the route to approach Company B.

Thus, as the method of determining how an action  
 is automatically processed, the technology disclosed  
 by the Japanese Patent Application No.10-345511  
 25 'Automation Level Adjustment Apparatus, Automation Level

Adjusting Method, and Automation Level Adjustment Program  
Storage Medium' can be used. This technology is to select  
interactively with a user or automatically an automation  
level for performing an action based on the record of  
5 history information, etc. about a situation, user actions,  
etc. from among a plurality of selectable automation  
levels, and perform the action based on the selected  
automation level.

Otherwise, depending on whether or not a user can  
10 be in time for a schedule, advice such as 'Hurry up!',  
'Slow down', etc. can be given, or a branch of a schedule  
can be specified depending on the situation, thereby  
suggesting and performing an action.

#### (8) Process of Center

15 The center 60 provides management and distribution  
services of schedule scripts. Upon receipt from a user,  
the center 60 distributes a corresponding schedule script.

The center 60 comprises a schedule edition unit 61 for  
editing a schedule script, and comprises a maintaining  
20 function and a retrieving function to manage a large  
volume of scripts. For example, the maintenance  
efficiency and the retrieval efficiency can be improved  
by storing schedule scripts with a unique number or name  
assigned for identification to a part or all of each  
25 schedule script, classifying and storing schedule scripts



with specific items in the scripts, and storing only one body of a schedule script and the link to the body for each class. Furthermore, the retrieving method can be a method of not limiting targets, specifying the position to be searched using a tag, considering the structure, specifying the range of time and place, retrieving a script containing a plurality of specific schedule instructions, retrieving vague targets in association with a category, etc.

#### 10 [Automatic Generation of Schedule]

By providing an automatic schedule generation unit 20 in the user terminal 1, the function of automatically generating a schedule script based on the actual action in addition to a normal text editor and an editor using a GUI. FIG. 12 shows an example of the configuration of the automatic schedule generation unit. FIG. 13 shows the process flow of the automatic schedule generation unit.

When the automatic schedule generation unit 20 receives a sign of starting a process from a user or a system, and the user starts his or her action (S81), a environmental situation detection unit 21 obtains the environmental situation associated with the user's action (S82). For example, time and place information is obtained from the GPS, and a time measurement unit 211,

a place estimation unit 212, and a situation estimation unit 213 estimate the passage of time, the place of the user, and the situation.

An action estimation unit 23 estimates the action  
 5 of the user at the time (S83), and an action determination unit 24 determines an action to be performed at the time (necessary action to present a schedule and make the user follow the schedule) (S84). Then, an instruction generation unit 25 assigns a corresponding tag to a set  
 10 of an environmental situation and an action, and generates an instruction (S85). The process is repeated and terminated when there is a termination sign from a user or a system, and a schedule script generation unit 26 groups instructions, and enters them as a schedule script  
 15 (S86).

An instruction can be generated: at a predetermined sampling time, when a corresponding action is detected in the action list stored in the action estimation unit 23, and when it is determined that a characteristic action  
 20 has been detected based on any evaluation standard. Furthermore, a periodic action can be detected for a script. For example, if a user watches a drama during the same period of the week, it can be set as an instruction, and the TV is automatically turned on for the period  
 25 and the channel. Furthermore, the process can be

semiautomatically performed, and an instruction can be generated based on a set of the situation at a user-specified time and an action. Thus, a person not familiar with the markup language, etc. can easily generate a schedule script.

[Integration with Event Schedule]

According to the present invention, a plurality of schedule scripts can be easily integrated into one schedule script.

10 A personal schedule script described as a personal schedule is integrated with an event schedule script described as a schedule of an event (a sports match, a TV program, a concert, an event, etc.) published by a schedule server, etc. into one schedule script, and  
15 is presented with a user schedule as a schedule relating to an event. Thus, an associated action can be suggested and performed.

An example of the process is described by referring to FIG. 1. First, the user stores a personal schedule  
20 in the media 50. Upon receipt of a request to read a schedule script, the personal schedule script is read from the media 50 to the schedule conversion unit 12 through the media access unit 19, and simultaneously an event schedule is read from the center 60 storing  
25 event schedules to the schedule conversion unit 12 through

the network 40 and the network access unit 18.

The schedule conversion unit 12 selects an instruction from the two read schedule scripts, and the selected instruction is integrated into the schedule script of the user. Since schedule scripts are simple text data, they can be easily selected and integrated by arranging them for each instruction. When a plurality of schedules are integrated, there can be schedules overlapping each other. In this case, one of the overlapping schedules is selected, or the user is asked to select one according to the personal schedule priority rule, etc. set by the user or the system.

Since there are innumerable event schedules, they can be filtered by the center 60 or the user terminal 1 on the client side according to the taste of the user.

For example, if the user likes sports, but does not like music as the taste of the user, only the schedule script relating to sports event information is read, and the schedule script relating to music is omitted.

Based on the integrated schedule script, and according to the information obtained by the instruction process unit 13 from the situation obtaining unit 16, the schedule presentation unit 14 presents a schedule to a user, or the action suggestion/execution unit 15 suggests and performs an action corresponding to a schedule with the

time and place taken into account.

As described above, various processes can be performed by appropriately arranging schedule scripts, and a provider of event information can use the information  
 5 as an advertisement. In addition, a schedule for each instruction can be transmitted to a target user. In a similar integrating method, schedules of colleagues and friends can be adjusted.

Described below is an example of a practical  
 10 application of the present invention to various appliances.

[Example of Application of the Present Invention to PDA]

Described below is an example of a case in which  
 15 the present invention is applied to a PDA (personal digital (data) assistant). The PDA is a small information terminal capable of efficiently managing personal information, such as a schedule notebook, an address notebook, a To Do list, etc., which has been conventionally  
 20 managed on a personal notebook, and is a convenient and portable terminal for a user.

FIG. 14 shows an example of the system configuration in which the present invention is applied to the PDA.

In FIG. 14, a center 610 corresponds to the center 60  
 25 shown in FIG. 1, a user terminal 100 corresponds to the

user terminal 1 shown in FIG. 1, a PHS/cellular phone  
 110 corresponds to the network access unit 18 shown in  
 FIG. 1, a user operation unit 120 corresponds to the  
 input unit 11 shown in FIG. 1, a user presentation unit  
 5 130 corresponds to the schedule presentation unit 14  
 or the action suggestion/execution unit 15 shown in FIG.  
 1, an instruction execution unit 140 corresponds to the  
 instruction process unit 13 shown in FIG. 1, a GPS 170  
 corresponds to the situation obtaining unit 16 shown  
 10 in FIG. 1. A map information system 150 and a speech  
 synthesis system 160 are not always required in the present  
 invention, but are provided as effective and convenient  
 units for use in presenting a schedule to a user.

Assume that there is a schedule script. It can  
 15 be entered in the user terminal 100 in advance, and can  
 be obtained from the network when a communications device  
 such as the PHS/cellular phone 110 shown in FIG. 14 is  
 mounted.

The instruction execution unit 140 analyzes and  
 20 executes the schedule script, and outputs a schedule  
 as necessary based on the positional information from  
 the GPS 170, the current time, etc. To clearly indicate  
 the current position, the position and the scale are  
 transmitted to the map information system 150 to obtain  
 25 a corresponding map and display the position on the map,

or the speech reading text in the schedule script can be passed to the speech synthesis system 160 to obtain speech data, thereby presenting a schedule in voice to the user.

5           FIG. 15 shows an example of a display screen of a viewer for a PC and PDA which displays the above mentioned schedule. A viewer 200 has a map 201 indicating a place, and a scheduler 202 indicating a time, and displays only the schedule corresponding to the displayed range.

10           As for a place, the 1/12500-scale map around Tokyo Station is displayed on the map 201 at the upper left of the viewer 200. For the schedule in the range, a pin-shaped icon indicates that there is a schedule.

15           In the schedule script as shown in the <<Example 3>> described above, the place conditions of the schedule of 'buying 'ningyouyaki' which is an item specific to Tokyo' according to the first instruction, and the schedule of 'buying the book  $\Delta\Delta$ ' according to the second instruction are contained in the map range. Therefore, 20 two pin icons 204-1 and 204-2 are displayed on the map 201. Since the second instruction specifies that 'area =200m' as an information presentation condition, a circle having a 200m radius is displayed, and the schedule information (second instruction) is presented when the 25 user enters the range. On the other hand, 'buy a roll

of film' according to the fifth instruction and 'go to the topical restaurant X' according to the sixth instruction are out of the range of the displayed map 201. Therefore, they are not displayed.

5           The display range of the map 201 is specified such that the user position can be displayed in the center when the user is moving. The display scale of the map 201 can be automatically varied by a user's moving speed.

For example, when the user is moving in a moving method  
10 such as a car at a high speed, the display range can be enlarged. When the user is moving in a moving method such as feet at a low speed, the display range can be reduced. Furthermore, the displayed place and scale can be manually changed by the user. In this case, a  
15 display range change icon, a radio button, etc. are arranged around the map 201 for selection.

When the user arrives at a position satisfying the place condition, the information about a corresponding schedule is displayed in an information presentation  
20 area 203 as text and an image. Speech data can be presented in voice.

Even if the user does not actually visit the place, the information about a schedule corresponding to the place can be displayed in text and image on the information  
25 presentation area 203, and speech data can be read in



voice so that the schedule can be confirmed by clicking a mouse on a pin icon 204 on the map when the display range is to be changed, or when the schedule for the place is confirmed.

5           As for a time, as displayed by the scheduler 202 on the right of the display screen of the viewer 200, There is a schedule table along a time axis, and a schedule in the range is displayed. In this example, since there is a schedule table from 8:00 in the morning on July  
10 21 to 10:00 in the evening on the same day, the information in the time range is displayed. In the schedule script shown in the above mentioned <<Example 3>>, 'meeting at Company A (in Shinjuku)' according to the third instruction and 'Conference (office)' according to the  
15 fourth instruction are displayed. Even if there are schedules for the day other than July 21, they are not displayed then.

The time axis schedule table can be replaced with the schedule of the day or the schedule of the month.  
20 For example, if the calendar of July is put in the viewer 200 at the instruction of the user, all schedules in July are assigned. The ranges of the schedules continuing during the period are indicated by solid lines, and the ranges of the schedules to be performed only once are  
25 indicated by dotted lines.

If the time condition of a schedule is satisfied, the information about a schedule is displayed in the information presentation area 203 in text and image according to the presentation condition. Speech data  
 5 of a schedule can be read in voice.

Even if the time is not actually reached, the information about a schedule can be displayed on the information presentation area 203 in text and image, and speech data can be read in voice so that the contents  
 10 of the presented schedule can be confirmed at any time by clicking a mouse on a corresponding portion when it is checked what schedule guidance has been assigned to the schedule at the corresponding time.

Furthermore, as the second instruction and the sixth  
 15 instruction in the schedule script described in the above mentioned <<Example 3>>, when there are a time condition and a place condition, no information is displayed on a map screen and a schedule table of a time axis unless any of the time and the place is in the range.

20 In the viewer 200 shown in FIG. 15, in the case of the second instruction, the time and the place are in the ranges of the map 201 and the time axis of the scheduler 202. Therefore, the information is displayed.

If, for example, the place is specified by a date, and  
 25 the date does not match the date on the time axis schedule

table, the information is not displayed. Similarly, if the display range on the map 201 becomes not to contain the place condition, then the schedule disappears from the scheduler 202. In the case of the sixth instruction, the time is contained in the time axis schedule table of the scheduler 202. However, since the place in the place condition is not in the display range on the map 201, the schedule is not displayed on the map 201 or the scheduler 202.

About the method of displaying a schedule on the map, the system according to the present invention has the following characteristics.

(1) A place conditional schedule is displayed on a map.

(2) A place conditional schedule is managed on a map.

(3) A place conditional schedule is displayed as overlapping a corresponding place on a map. Otherwise, relating to the portion corresponding to map information, the information about a schedule is presented or executed by performing any operation on the portion (clicking, etc.).

(4) When a place conditional schedule is displayed, only a schedule within a display range on the displayed map is displayed. For example, when the scale or the

size of a map is changed, the schedule in the range on the changed map is displayed.

(5) A schedule is displayed as overlapping the corresponding place on the map. Otherwise, relating to the portion corresponding to the map information, the information relating to the schedule is presented or executed by performing any operation on the portion.

(6) When a series of place and time conditional schedule is displayed on a map, the order in which a plurality of schedules are performed can be represented by sequentially linking them through lines.

(7) The range of the place condition of a place conditional schedule is displayed by drawing a figure on a map. For example, when there is a schedule of performing ○○ if a user enters a range of a radius of 100m from a specified place, a circle having a radius of 100m and the place in the center is displayed on the map.

(8) When a place and time conditional schedule is displayed using both a time axis schedule table and a map, only a schedule whose place and time conditions are contained in the display ranges of the time axis schedule table and the map, respectively, is displayed on both the time axis schedule table and the map. If one of the place condition and the time condition is

not contained in the display range, the schedule cannot be displayed.

For example, assume that there is a schedule of viewing cherry blossoms on condition that the place condition is 200m around Chidorigafuchi, and the time condition is April 1 through 10. Only when the display range of a map contains 200m around Chidorigafuchi, and the time axis schedule table displays the period containing April 1 through 10, the schedule is displayed on the table and map. When one of the conditions is not satisfied, the schedule is not displayed. For example, when the time axis schedule table displays only April 1, that is, only one day, the schedule is not displayed. However, the entire month of April is displayed, the schedule is displayed.

(9) Only when the actual or virtual current time and current place meet the time condition and the place condition of a schedule, the schedule is displayed on the map and the time axis schedule table.

(10) As a user moves, the display range on the map is changed correspondingly, and a schedule in the moved-to range is displayed.

[Example of Application of the Present Invention to cellular phone/PHS]

Described below is an example in which the present

invention is applied to a cellular phone and a PHS (personal handyphone system). In the cellular phone and the PHS, since it is difficult to perform a process having various functions because of their size and performance, most processes are performed in the center, and only displayed text data and speech data are transmitted to the cellular phone/PHS.

FIG. 16 shows an example of the system configuration in which the present invention is applied to the cellular phone/PHS. In this example, a center 620 corresponds to the center 60 shown in FIG. 1, the user terminal (cellular phone/PHS) 300 corresponds to the network access unit 18 shown in FIG. 1, a user operation unit 310 corresponds to the input unit 11 shown in FIG. 1, a user presentation unit 320 corresponds to the schedule presentation unit 14 and the action suggestion/execution unit 15 shown in FIG. 1, an instruction execution unit 621 corresponds to the instruction process unit 13 shown in FIG. 1, and the GPS 330 corresponds to the situation obtaining unit 16 shown in FIG. 1.

In this example, a schedule script is stored in the center 620. The center 620 can be informed of the position of a user terminal 300 from the base station for receiving an electric wave output by the user terminal 300. Otherwise, when the user terminal 300 is provided

with a device such as a GPS 330, the current position of the user terminal 300 is obtained by transmitting the positional information from the user terminal 300.

In the center 620, when the instruction execution unit 621 analyzes and executes the schedule script for the user terminal (cellular phone/PHS) 300, and when the positional condition and time condition match the received positional information and the time information, the text, image, and speech information for presentation of a schedule are transmitted to the user terminal 300.

Thus, the user terminal 300 receives schedule information, and text/image/speech information can be presented by the user presentation unit 320.

FIGS. 17 and 18 show an example of the appearance of the user terminal 300. FIG. 17 shows an example of a display when the information presented by a schedule of the user presentation unit 320 is text information.

FIG. 18 shows an example of a display when it is image information. These displays can be switched by a switch button provided as, for example, the user operation unit 310.

In the above mentioned embodiments, the system of displaying a schedule depending on the current time and place is described, but there can be a system of displaying a schedule depending on the range of a user-specified

time and place information. The range of time information refers to the display range of a time axis displayed when a user checks a schedule note by specifying the period of one month, one week, one day, etc. The range of place information normally refers to the display range of a map displayed to a user.

FIG. 19 shows an example of the configuration of the system. In FIG. 19, the component also shown in FIG. 1 is assigned a common reference numeral. A user presentation time range specification unit 700 specifies the range (one hour, one day, one week, one month, etc.) of time information for display of a schedule based on the user operation input. Depending on the case, the range is automatically adjusted by the system.

In addition, a user presentation place range specification unit 710 specifies the range of place information for display of a schedule based on the operation input of the user. In a normal operation, the scale of a map, the display size, place, etc. are changed. In the case of that a user is moving, etc., the range can be automatically adjusted by the system.

A presentation schedule selection unit 720 selects only schedules contained in the range specified by the user presentation time range specification unit 700 and the user presentation place range specification unit



710 from among the schedules input by the input unit 11, and passes the schedules to a place view display unit 730 and a time axis view display unit 740. As shown in FIG. 15, the place view display unit 730 and the time axis view display unit 740 display the received schedules on the map and the time axis schedule table, respectively.

[Other Effective Embodiments]

(1) Various schedule scripts such as a life of a lord in Edo Period in Japan, a schedule of an idol, a scene of a film, a practice schedule of a professional baseball player, a day of a president, a line of a main character in a role playing game, etc. can be sold through Internet, a prepaid card, an appendix to a magazine, a terminal provided on a street, etc. An advertisement of a shop, and a guide to movies can also be included.

(2) In addition, the function of automatically generating a schedule enables a travel record to be automatically generated. A user can enjoy the experience of the travel by reproducing it in a simulation mode.

(3) A schedule script is described for an object other than a human being, and an interaction between objects is processed. As a result, an action and a process of an animal, an article, a substance, and information can be visually checked. For example, the life of a traveling bird, a day of a letter, a process of electronic

mail, etc. can be explained, and can be used for education.

(4) Since an action plan can be described in a schedule script, a reservation can be made for a hotel, a restaurant, etc., and a transportation or concert ticket can be obtained according to the action plan. This can be realized by describing instructions for the transportation means on a moving route and places to be visited (contact information and reservation information) onto the schedule script, and by performing an action of notifying the transportation means and the places to be visited described on the schedule script of the contact information and reservation information before moving according to the schedule script.

As described above, according to the present invention, a schedule script can be easily read and written by realizing it using a standard markup language. In addition, since a schedule script is basically text data, the capacity of a storage medium can be small, and the execution according to an instruction can be easily realized.

Using various types of devices and media, at the same or different times, or in the same or different places, various users can use schedule management services online or offline.

A schedule script can be executed, converted,

generated, edited, analyzed, coupled, changed, amended, copied, deleted, stored, and retrieved. It also can be stored as a database for reuse. In addition, a schedule script can be carried or transferred by appropriate electronic media and networks. A schedule script can be sold, purchased, issued, received, given, obtained, thrown away, picked up, value-added. Practically, a schedule script can be generated and provided by a schedule script center, a contents provider, a person, an organization, and any others.

A schedule script generated by a personal computer (PC), a car navigation system, a PDA, a cellular phone, etc. can be written to an IC card and a prepaid card.

In addition, the schedule script written onto an IC card and a prepaid card can be read to a PC, car navigation system, PDA, cellular phone, etc. to execute an instruction for a schedule management system.

A schedule management received by a PC, car navigation system, PDA and the cellular phone can be switched to another PC, car navigation system, PDA, cellular phone, etc. to continuously receive schedule management. For example, even if a user who receives schedule management while moving on foot using a cellular phone transfers to a car, the same schedule management can be continuously received from the car navigation

A method of presenting a schedule to a user can be written.

10

As a normal schedule management system, the present invention can be used in preventing daily operations from being forgotten, and in self-management.

**What is claimed is:**

1. An apparatus which presents a schedule to a user depending on a situation, comprising:

5           an input device inputting a schedule comprising a sequence of instructions based on a predetermined specification which can be described by a set of at least place information and time information, a schedule to be performed according to the place information and the  
10   time information, and a method of presenting the user with the schedule;

          a device performing one of obtaining a situation of a current place and a current time, and generating a situation of a virtual current place and a virtual  
15   current time;

          a process device processing an instruction described in the input schedule depending on the current place and the current time obtained by one of obtaining the situation and generating the situation; and

20           a presentation device presenting a schedule according to a process of the instruction.

2. The apparatus according to claim 1, further comprising

25           a device suggesting and performing an action

corresponding to the schedule, wherein

said input device inputs a schedule containing a method of suggesting and performing the action.

5     3.     The apparatus according to claim 2, wherein  
          said schedule is described in a markup language  
          which identifies using a tag the place information, the  
          time information, the schedule to be performed, the method  
10    of presenting the user with the schedule, the method  
          of suggesting and performing the action corresponding  
          the schedule, and other components of the instructions.

          4.     The apparatus according to claim 2, wherein  
          said process device executes an instruction when  
15    said place information corresponds to one of the current  
          place of the user and the virtual current place and said  
          time information corresponds to one of the current time  
          and the virtual current time.

20    5.     The apparatus according to claim 2, wherein  
          said input device inputs a user-specified schedule  
          by one of communicating with an external device for  
          providing a schedule through a network, reading from  
          a computer-readable electronic medium, and inputting  
25    a schedule by the user.

6. The apparatus according to claim 2, further comprising:

5 a conversion device analyzing the input schedule and converting the schedule into structured data for schedule management, wherein

said process device executes an instruction represented in a form of the structured data for schedule management.

10

7. An apparatus which presents a schedule to a user depending on a situation, comprising:

15 an input device inputting a schedule comprising a sequence of instructions based on a predetermined specification capable of describing place information and time information, and a method of presenting a schedule to be processed according to a place and a time corresponding to the place information and the time information, using a set of a name identifying a type of each piece of  
20 information and contents of the information;

a setting device setting as an operation mode one of a real mode and a simulation mode, by one of inputting an operation by the user and setting by a system;

25 an obtaining device obtaining a situation of a current time and a current place in the real mode;

a generation device generating a situation of a virtual current time and a virtual current place in the simulation mode;

5 a process device processing an instruction described in the input schedule depending on the current place and the current time obtained by obtaining the situation in the real mode and depending on the virtual current place and the virtual current time obtained by generating the situation in the simulation mode; and

10 a presentation device presenting a schedule according to a process of the instruction.

8. The apparatus according to claim 7, further comprising

15 a device suggesting and performing an action corresponding to the schedule, wherein

said input device inputs a schedule containing a method of suggesting and performing the action.

20 9. A method of presenting a schedule to a user depending on a situation, comprising:

inputting a schedule comprising a sequence of instructions based on a predetermined specification capable of describing place information and time  
25 information, a method of presenting a schedule to be



processed according to a place and a time corresponding to the place information and the time information, and a method of suggesting and performing an action corresponding to the schedule, using a set of a name identifying a type of each piece of information and contents of the information, by one of communicating through a network, reading from an electronic medium, and inputting by the user;

performing one of obtaining a situation of a current place and a current time and generating a situation of a virtual current place and a virtual current time;

processing an instruction described in the input schedule depending on the current time and current place obtained by one of obtaining the situation and generating the situation; and

performing one of presenting a schedule, and suggesting and performing an action corresponding to the schedule, according to a process of the instruction.

20

10. A method of presenting a schedule to a user depending on a situation, comprising:

inputting a schedule comprising a sequence of instructions based on a predetermined specification capable of describing place information and time

11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300  
301  
302  
303  
304  
305  
306  
307  
308  
309  
310  
311  
312  
313  
314  
315  
316  
317  
318  
319  
320  
321  
322  
323  
324  
325  
326  
327  
328  
329  
330  
331  
332  
333  
334  
335  
336  
337  
338  
339  
340  
341  
342  
343  
344  
345  
346  
347  
348  
349  
350  
351  
352  
353  
354  
355  
356  
357  
358  
359  
360  
361  
362  
363  
364  
365  
366  
367  
368  
369  
370  
371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454  
455  
456  
457  
458  
459  
460  
461  
462  
463  
464  
465  
466  
467  
468  
469  
470  
471  
472  
473  
474  
475  
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513  
514  
515  
516  
517  
518  
519  
520  
521  
522  
523  
524  
525  
526  
527  
528  
529  
530  
531  
532  
533  
534  
535  
536  
537  
538  
539  
540  
541  
542  
543  
544  
545  
546  
547  
548  
549  
550  
551  
552  
553  
554  
555  
556  
557  
558  
559  
560  
561  
562  
563  
564  
565  
566  
567  
568  
569  
570  
571  
572  
573  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585  
586  
587  
588  
589  
590  
591  
592  
593  
594  
595  
596  
597  
598  
599  
600  
601  
602  
603  
604  
605  
606  
607  
608  
609  
610  
611  
612  
613  
614  
615  
616  
617  
618  
619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642  
643  
644  
645  
646  
647  
648  
649  
650  
651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673  
674  
675  
676  
677  
678  
679  
680  
681  
682  
683  
684  
685  
686  
687  
688  
689  
690  
691  
692  
693  
694  
695  
696  
697  
698  
699  
700  
701  
702  
703  
704  
705  
706  
707  
708  
709  
710  
711  
712  
713  
714  
715  
716  
717  
718  
719  
720  
721  
722  
723  
724  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737  
738  
739  
740  
741  
742  
743  
744  
745  
746  
747  
748  
749  
750  
751  
752  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765  
766  
767  
768  
769  
770  
771  
772  
773  
774  
775  
776  
777  
778  
779  
780  
781  
782  
783  
784  
785  
786  
787  
788  
789  
790  
791  
792  
793  
794  
795  
796  
797  
798  
799  
800  
801  
802  
803  
804  
805  
806  
807  
808  
809  
810  
811  
812  
813  
814  
815  
816  
817  
818  
819  
820  
821  
822  
823  
824  
825  
826  
827  
828  
829  
830  
831  
832  
833  
834  
835  
836  
837  
838  
839  
840  
841  
842  
843  
844  
845  
846  
847  
848  
849  
850  
851  
852  
853  
854  
855  
856  
857  
858  
859  
860  
861  
862  
863  
864  
865  
866  
867  
868  
869  
870  
871  
872  
873  
874  
875  
876  
877  
878  
879  
880  
881  
882  
883  
884  
885  
886  
887  
888  
889  
890  
891  
892  
893  
894  
895  
896  
897  
898  
899  
900  
901  
902  
903  
904  
905  
906  
907  
908  
909  
910  
911  
912  
913  
914  
915  
916  
917  
918  
919  
920  
921  
922  
923  
924  
925  
926  
927  
928  
929  
930  
931  
932  
933  
934  
935  
936  
937  
938  
939  
940  
941  
942  
943  
944  
945  
946  
947  
948  
949  
950  
951  
952  
953  
954  
955  
956  
957  
958  
959  
960  
961  
962  
963  
964  
965  
966  
967  
968  
969  
970  
971  
972  
973  
974  
975  
976  
977  
978  
979  
980  
981  
982  
983  
984  
985  
986  
987  
988  
989  
990  
991  
992  
993  
994  
995  
996  
997  
998  
999  
1000

information, a method of presenting a schedule to be processed according to a place and a time corresponding to the place information and the time information, and a method of suggesting and performing an action corresponding to the schedule, using a set of a name identifying a type of each piece of information and contents of the information;

setting as an operation mode one of a real mode and a simulation mode, by one of inputting an operation by the user and setting by a system;

obtaining a situation of a current time and a current place in the real mode, and generating a situation of a virtual current time and a virtual current place in the simulation mode;

processing an instruction described in the input schedule depending on the current place and the current time obtained by obtaining the situation in the real mode and depending on the virtual current place and the virtual current time obtained by generating the situation in the simulation mode; and

performing one of presenting a schedule, and suggesting and performing an action corresponding to the schedule, according to a process of the instruction.

11. A storage medium storing a program for a computer

presenting a schedule to a user depending on a situation,  
said program enabling the computer to perform:

inputting a schedule comprising a sequence of  
instructions based on a predetermined specification  
5 capable of describing place information and time  
information, a method of presenting a schedule to be  
processed according to a place and a time corresponding  
to the place information and the time information, and  
a method of suggesting and performing an action  
10 corresponding to the schedule, using a set of a name  
identifying a type of each piece of information and  
contents of the information, by one of communicating  
through a network, reading from an electronic medium,  
and inputting by the user;

15 performing one of obtaining a situation of a current  
place and a current time and generating a situation of  
a virtual current place and a virtual current time;

processing an instruction described in the input  
schedule depending on the current time and current place  
20 obtained by one of obtaining the situation and generating  
the situation; and

performing one of presenting a schedule, and  
suggesting and performing an action corresponding to  
the schedule, according to a process of the instruction.

25

12. A storage medium storing a program for a computer presenting a schedule to a user depending on a situation, said program enabling the computer to perform:

inputting a schedule comprising a sequence of  
5 instructions based on a predetermined specification capable of describing place information and time information, a method of presenting a schedule to be processed according to a place and a time corresponding to the place information and the time information, and  
10 a method of suggesting and performing an action corresponding to the schedule, using a set of a name identifying a type of each piece of information and contents of the information;

setting as an operation mode one of a real mode  
15 and a simulation mode, by one of inputting an operation by the user and setting by a system;

obtaining a situation of a current time and a current place in the real mode, and generating a situation of a virtual current time and a virtual current place in  
20 the simulation mode;

processing an instruction described in the input schedule depending on the current place and the current time obtained by obtaining the situation in the real mode and depending on the virtual current place and the  
25 virtual current time obtained by generating the situation

in the simulation mode; and

performing one of presenting a schedule, and suggesting and performing an action corresponding to the schedule, according to a process of the instruction.

5

13. A computer-readable storage medium for a computer presenting a schedule to a user depending on a situation, storing schedule data:

wherein said schedule data comprise an electronic code string described in a markup language based on a predetermined specification, said code string including a sequence of instructions based on a predetermined specification capable of describing place information and time information, a method of presenting a schedule to be processed according to a place and a time corresponding to the place information and the time information, and a method of suggesting and performing an action corresponding to the schedule, using a set of a name identifying a type of each piece of information and contents of the information; and

wherein said schedule data are read and used by the computer for presenting a schedule to the user, and suggesting and performing an action corresponding to the schedule according to the instructions.

25

14/ An automatic schedule generation apparatus which automatically generates a schedule to be presented to a user depending on a situation, comprising:

5 a device obtaining a situation of a current time and a current place one of at predetermined time intervals, at predetermined places, at predetermined distances, at each matching item in a prepared user action list, for each characteristic user action, and for a user instruction;

10 a device estimating a user action performed when the situation is obtained, and determining a schedule and one of a method of presenting the schedule to the user depending on the schedule and a method of suggesting and performing an action depending on the schedule;

15 a device generating schedule data comprising a sequence of instructions based on a predetermined specification capable of describing place information and time information, a method of presenting the schedule to be processed according to a place and a time  
20 corresponding to the place information and the time information, and a method of suggesting and performing an action corresponding to the schedule, using a set of a name identifying a type of information and contents of the information, according to obtained and determined  
25 information about the schedule; and

a device storing generated schedule data in an electronic medium.

15. A schedule presentation apparatus which presents  
5 a user with information corresponding a schedule, comprising:

an input device inputting data comprising a sequence  
of a predetermined specification which can be described  
by a set of a place condition and a time condition, and  
10 a schedule to be performed based on the place condition  
and time condition; and

a process device processing the schedule described  
in the input data depending on a range of a place information  
and a range of a time information to be presented to  
15 the user.

16. The apparatus according to claim 15, further comprising

a display device displaying the schedule described  
20 in the input data together with the place condition on  
a map corresponding to the range of the place information.

17. The apparatus according to claim 16, wherein

said display device displays the schedule when a  
25 range of the place condition is contained in a display

range of the map.

18. The apparatus according to claim 16, wherein  
said display device displays an order of executing  
5 a plurality of schedules when the plurality of schedules  
having a series of place conditions are displayed on  
the map, by sequentially connecting the plurality of  
schedules using lines.

10 19. The apparatus according to claim 15, further  
comprising

a display device displaying a map corresponding  
to the range of the place information and a time axis  
schedule table corresponding to the range of the time  
15 information, and displaying the schedule described in  
the input data on the map together with the place condition,  
and on the time axis schedule table together with the  
time condition when a range of the place condition is  
contained in a display range of the map and a range of  
20 the time condition is contained in a display range of  
the time axis schedule table.

20. A schedule presentation apparatus which presents  
a user with information corresponding a schedule,  
25 comprising:



an input device inputting data comprising a sequence of a predetermined specification which can be described by a set of a place condition and a time condition, a schedule to be performed based on the place condition and time condition, and a method of presenting a user with presentation information for the schedule; and

a process device processing at least one of the schedule described in the input data and the presentation information for the schedule depending on a range of a place information and a range of a time information to be presented to a user.

21. A schedule presentation apparatus which presents a user with information corresponding a schedule, comprising:

an input device inputting data comprising a sequence of a predetermined specification which can be described by a set of a place condition and a time condition, a schedule to be performed based on the place condition and time condition, and a method of presenting a user with presentation information for the schedule;

a device performing one of obtaining a situation of a current place and a current time, and generating a situation of a virtual current place and a virtual current time; and

a process device processing at least one of the schedule described in the input data and the presentation information for the schedule depending on the current place and the current time obtained by one of obtaining  
 5 the situation and generating the situation.

22. The apparatus according to claim 21, further comprising

a display device displaying a map, and displaying  
 10 on the map at least one of the schedule described in the input data and the presentation information for the schedule, together with the place condition.

23. The apparatus according to claim 22, wherein  
 15 said display device changes a display range of the map as the current place moves, and displays a schedule having a place condition contained in the changed display range.

20 ~~24.~~ A schedule presentation apparatus which presents a user with information corresponding a schedule, comprising:

an input device inputting data comprising a sequence of a predetermined specification which can be described  
 25 by a set of a place condition and a time condition, a

schedule to be performed based on the place condition and time condition, a method of presenting a user with presentation information for the schedule, and an action to be performed for the schedule;

5           a device performing one of obtaining a situation of a current place and a current time, and generating a situation of a virtual current place and a virtual current time; and

10           a process device processing at least one of the schedule described in the input data and the presentation information for the schedule depending on the current place and the current time obtained by one of obtaining the situation and generating the situation; and

15           an execution device performing the action to be performed for the schedule described in the input data depending on the current place and the current time obtained by one of obtaining the situation and generating the situation.

20    ~~5.~~ A schedule presentation apparatus which presents a user with information corresponding a schedule, comprising:

25           input means for inputting data comprising a sequence of a predetermined specification which can be described by a set of a place condition and a time condition, and

a schedule to be performed based on the place condition and time condition; and

process means for processing the schedule described in the input data depending on a range of a place information and a range of a time information to be presented to the user.

26. A schedule presentation apparatus which presents a user with information corresponding a schedule, comprising:

input means for inputting data comprising a sequence of a predetermined specification which can be described by a set of a place condition and a time condition, a schedule to be performed based on the place condition and time condition, and a method of presenting the user with presentation information for the schedule;

means for performing one of obtaining a situation of a current place and a current time, and generating a situation of a virtual current place and a virtual current time; and

process means for processing at least one of the schedule described in the input data and the presentation information for the schedule depending on the current place and the current time obtained by one of obtaining the situation and generating the situation.

### Abstract of the Disclosure

Schedule data described using a sequence of a predetermined specification based on a set of a place  
5 condition and a time condition, and a schedule to be performed based on the place condition and time condition is processed depending on a range of a place information and a range of a time information to be presented to a user, and information corresponding to the schedule  
10 is presented to the user.

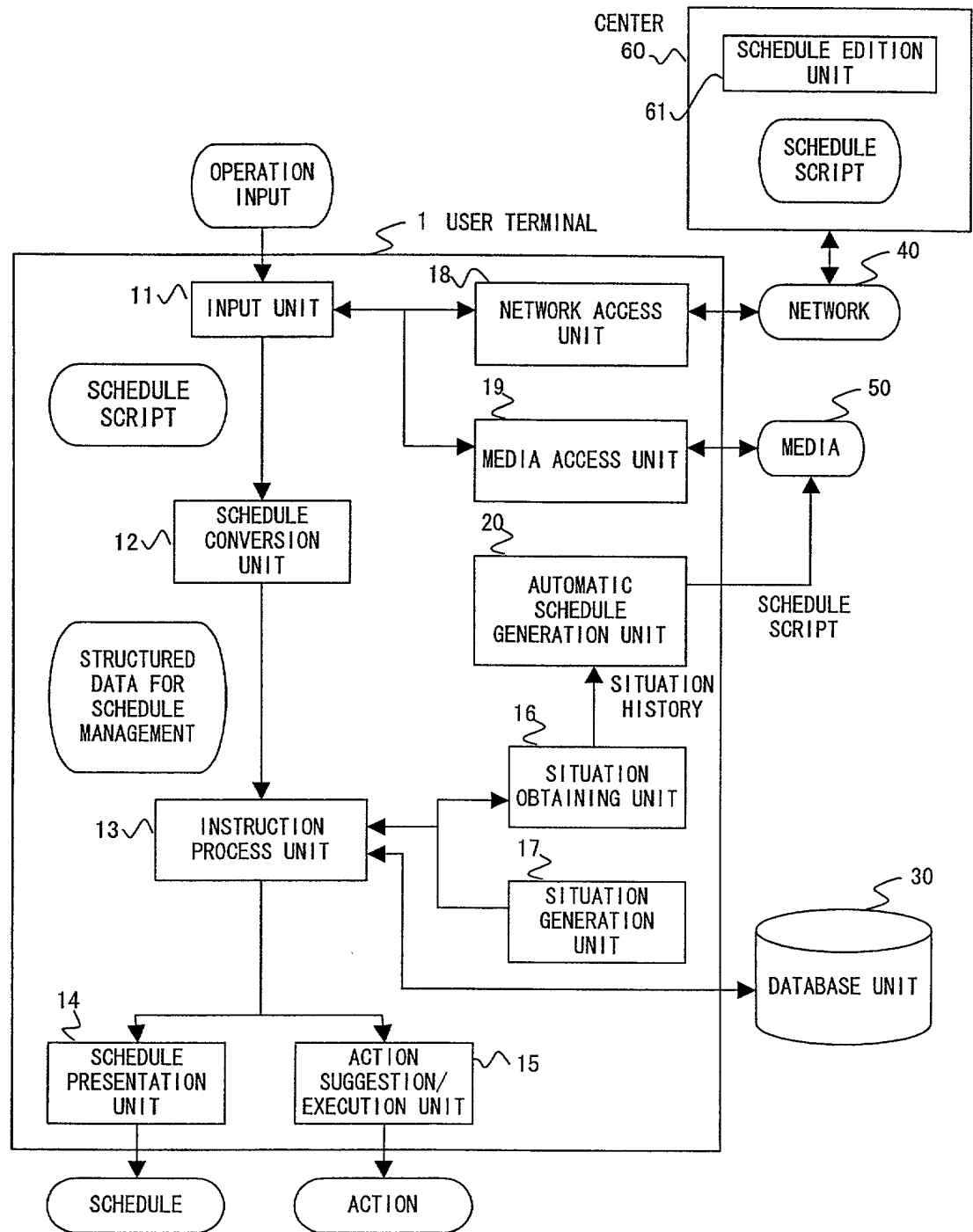


FIG. 1

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

| TIME                   | PLACE                     | SCHEDULE                               | PRESENTATION CONDITION | FORM  | PRESENTATION CONTENTS                             |
|------------------------|---------------------------|----------------------------------------|------------------------|-------|---------------------------------------------------|
|                        | TOKYO STATION             | BUYING 'NINGYOUYAKI' SPECIFIC TO TOKYO |                        | TEXT  | BUYING 'NINGYOUYAKI' SPECIFIC TO TOKYO            |
|                        |                           |                                        |                        | IMAGE | tokyo-station.gif                                 |
| 10:00 - 18:00 once     | TOKYO NANAESU BOOK CENTER | BUYING BOOK △△                         | area=200m              | TEXT  | BUYING BOOK △△                                    |
|                        |                           |                                        |                        | IMAGE | nanaesubookcenter-map.gif                         |
| 11:00 - 12:00 continue |                           | MEETING AT COMPANY A (IN SHINJUKU)     | delay=-30min           | ALARM |                                                   |
|                        |                           |                                        |                        | TEXT  | MEETING AT COMPANY A IN SHINJUKU 30 MINUTES LATER |
|                        |                           |                                        |                        | VOICE | MEETING AT COMPANY A IN SHINJUKU 30 MINUTES LATER |
|                        |                           |                                        |                        | IMAGE | MAP TO COMPANY A.gif                              |
|                        |                           |                                        | delay=-5min            | TEXT  | MEETING AT COMPANY A IN SHINJUKU 5 MINUTES LATER  |
|                        |                           |                                        |                        | VOICE | MEETING AT COMPANY A IN SHINJUKU 5 MINUTES LATER  |
|                        |                           |                                        |                        | IMAGE | BUILDING OF COMPANY A.gif                         |
| 15:00 - 17:00 continue |                           | CONFERENCE (OFFICE)                    | delay=-30min           | ALARM |                                                   |
|                        |                           |                                        | delay=-5min            | TEXT  | CONFERENCE IN OFFICE 30 MINUTES LATER             |
|                        |                           |                                        |                        | ALARM |                                                   |
|                        |                           |                                        |                        | TEXT  | IF YOU CANNOT BE IN TIME, MAKE A CALL.            |
|                        | SHINJUKU                  | BUYING FILM                            |                        | ALARM |                                                   |
|                        |                           |                                        |                        | TEXT  | BUYING FILM                                       |
| 12:00 - 13:00 once     | GINZA                     | GOING TO TOPICAL RESTAURANT X          |                        | ALARM |                                                   |
|                        |                           |                                        |                        | TEXT  | GOING TO TOPICAL RESTAURANT X                     |

FIG. 2

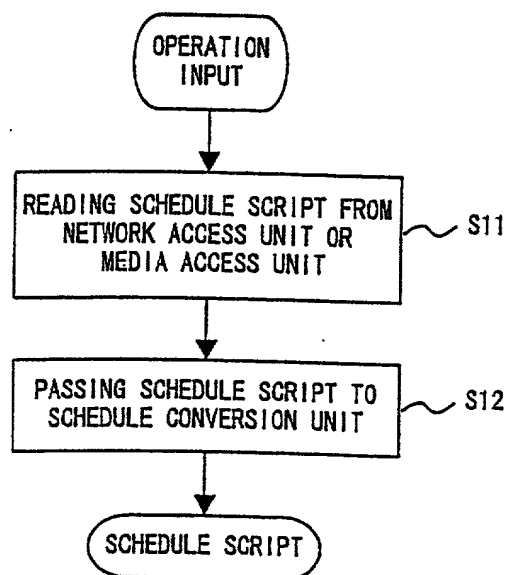


FIG. 3





FIG. 5 is a flowchart illustrating a process for schedule management. The process starts with 'STRUCTURED DATA FOR SCHEDULE MANAGEMENT' (oval), which leads to 'RECEIVING STRUCTURED DATA FOR SCHEDULE MANAGEMENT FROM SCHEDULE CONVERSION UNIT' (rectangle, S31). This leads to a decision diamond 'REAL MODE OR SIMULATION MODE?' (S32). If 'REAL MODE', the process goes to 'SITUATION OBTAINING UNIT' (rectangle, 16) and then to 'HAVING SITUATION OBTAINING UNIT OBTAIN SITUATION, THEREBY OBTAINING SITUATION' (rectangle, S33). If 'SIMULATION MODE', the process goes to 'SITUATION GENERATION UNIT' (rectangle, 17) and then to 'HAVING SITUATION GENERATION UNIT PREPARE AND GENERATE SITUATION, THEREBY OBTAINING SITUATION' (rectangle, S34). Both S33 and S34 lead to 'SUPPLEMENT INFORMATION ABOUT PLACE' (rectangle, S35), which leads to 'CONVERTING RELATIVE PLACE AND TIME INTO ABSOLUTE PLACE AND TIME' (rectangle, S36). Finally, the process ends at 'TO EXECUTING PROCESS' (rectangle).

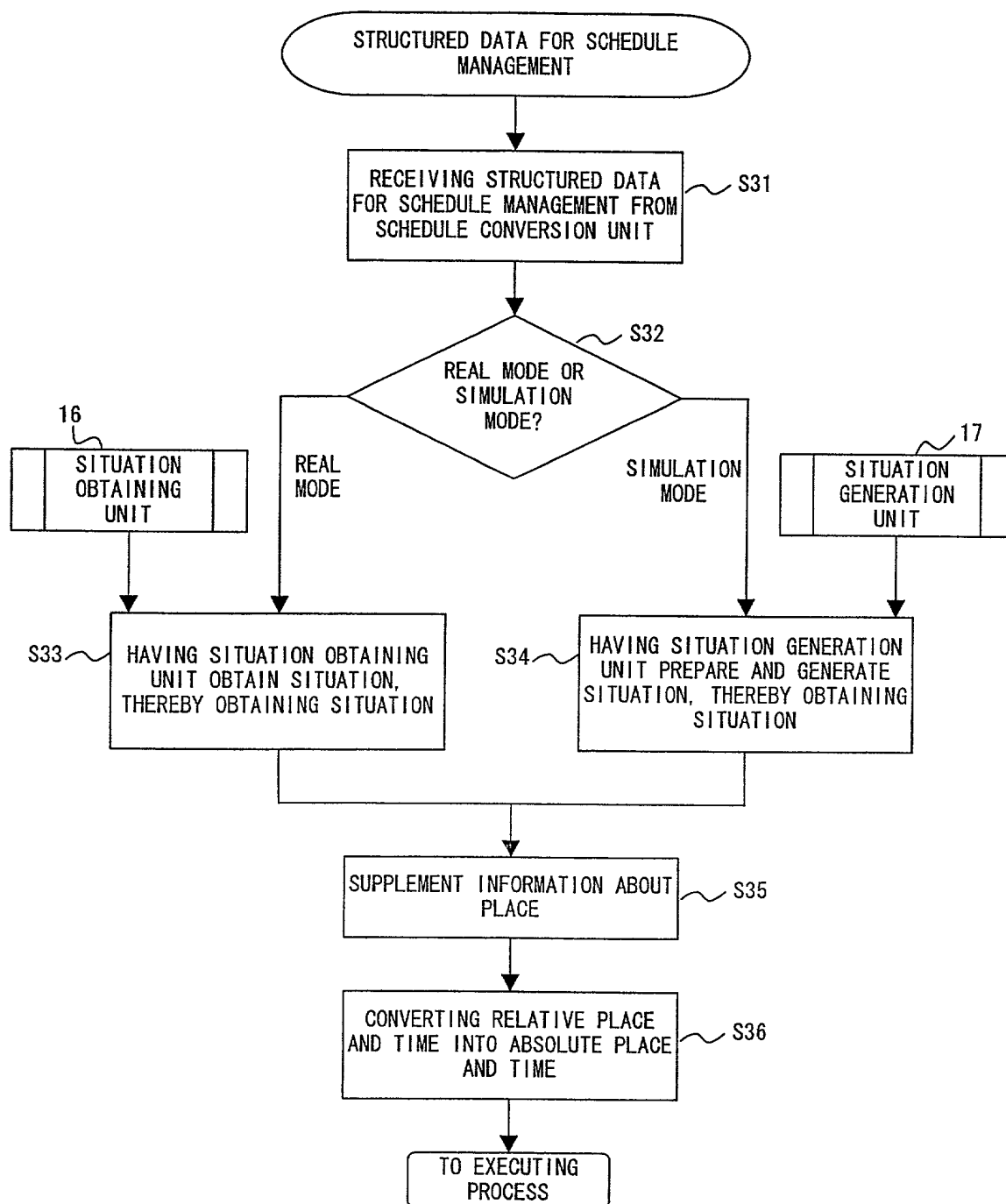


FIG. 5

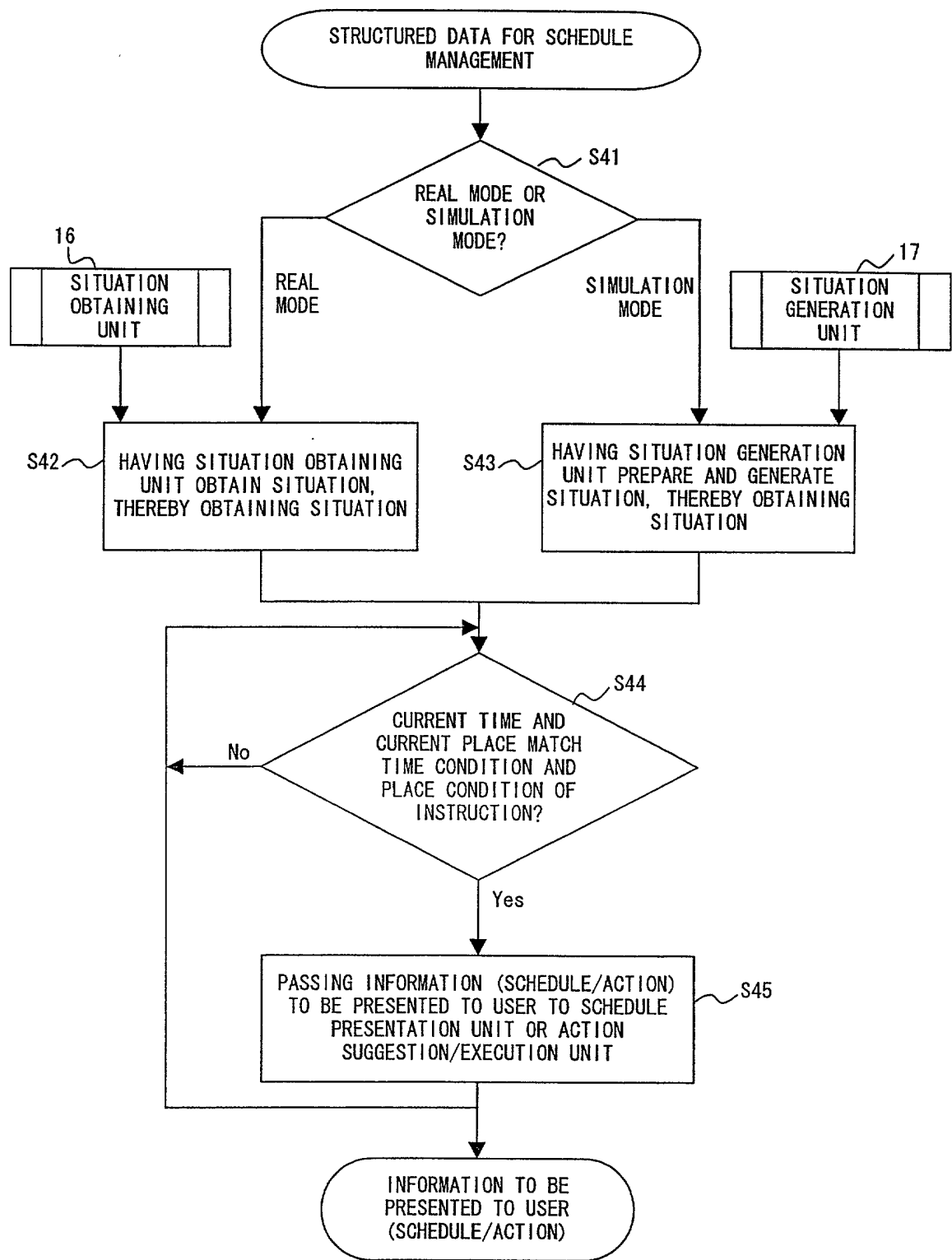


FIG. 6

FIG. 7 is a flowchart illustrating a process for obtaining current time and current place, and passing them to an instruction process unit.

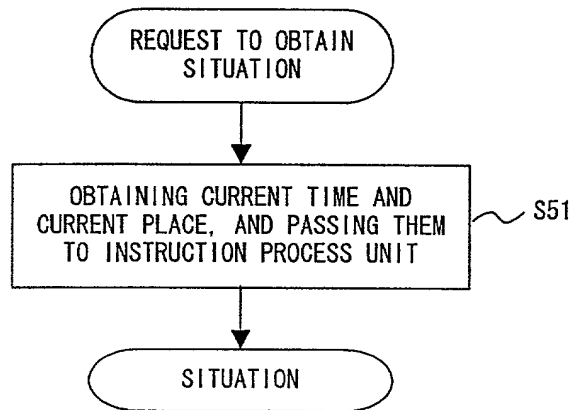


FIG. 7

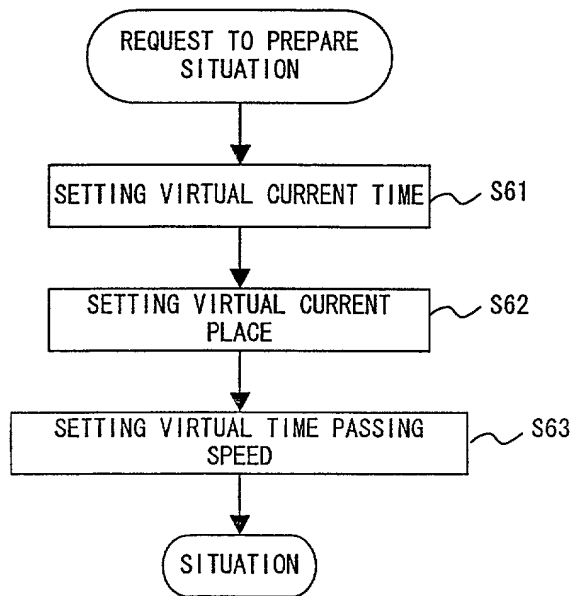


FIG. 8

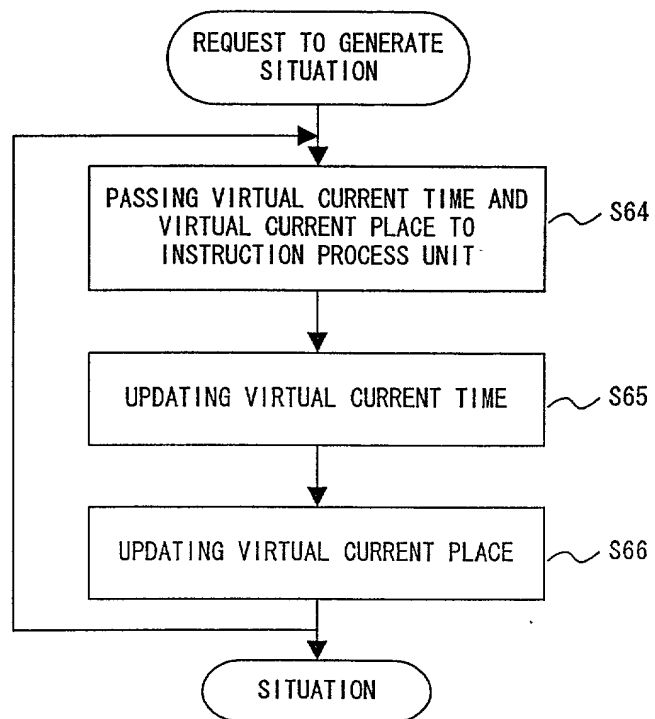


FIG. 9

Patent Application No. 2004-0100000 A1  
Filed: 2004.01.01  
Inventor: [Name]  
Attorney: [Name]

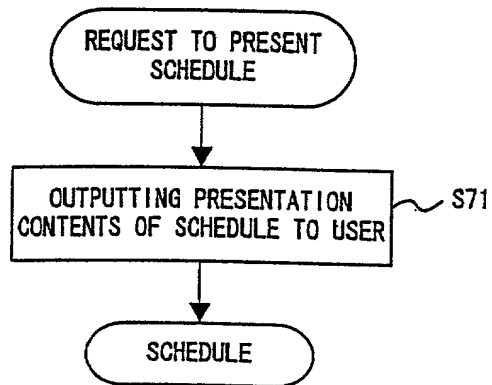


FIG. 10

FIG. 11 is a flowchart illustrating a process for handling a request to present and perform an action. The process begins with a request to present and perform an action, which leads to outputting contents to be suggested as an action, or performing the action. This step is labeled S72. The process then proceeds to the actual action.

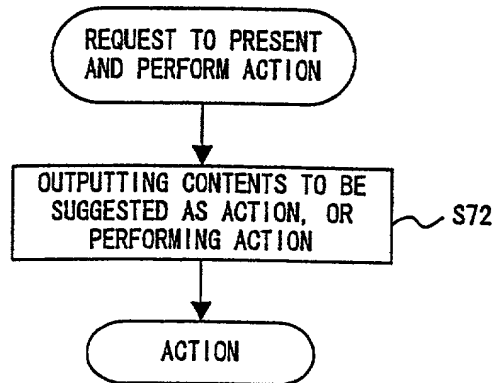


FIG. 11



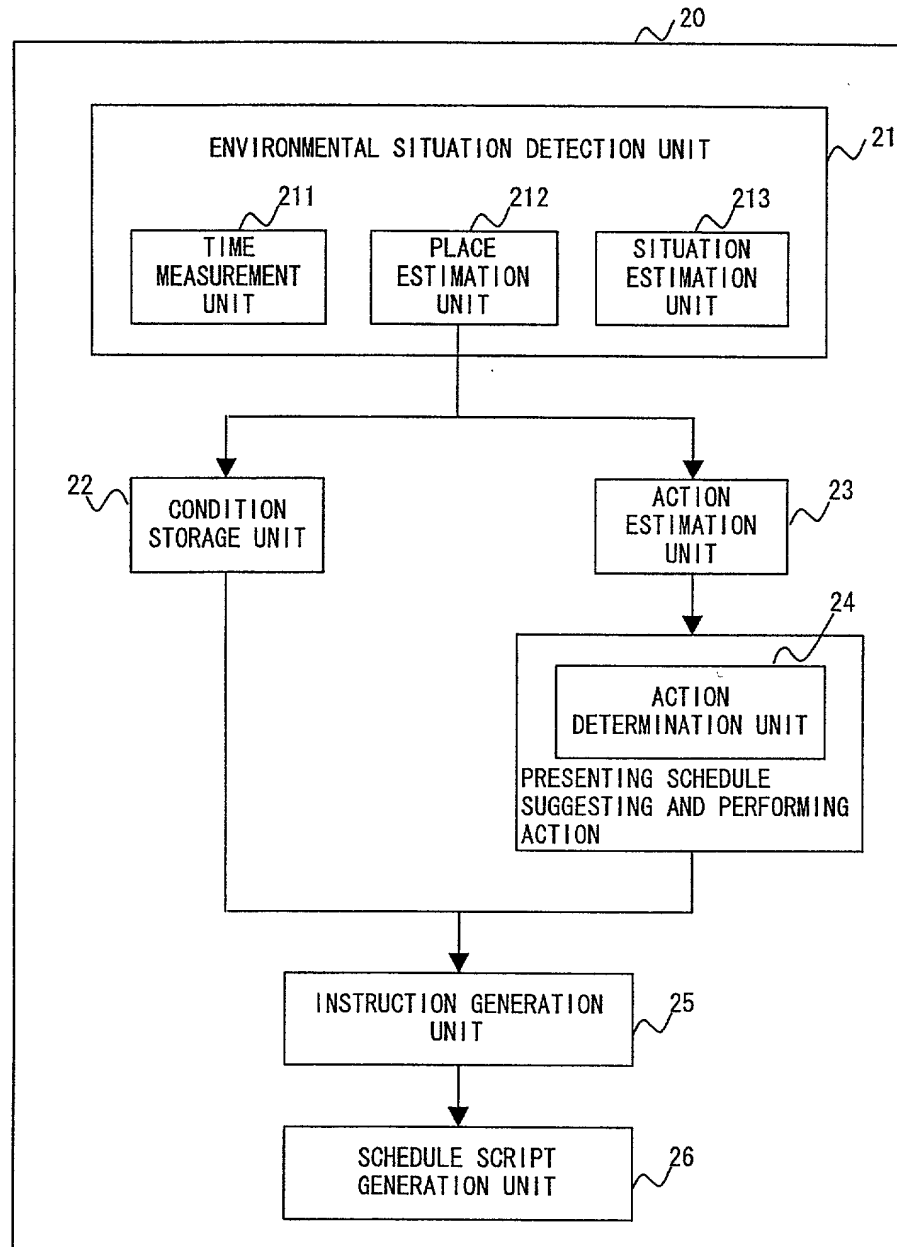


FIG. 12

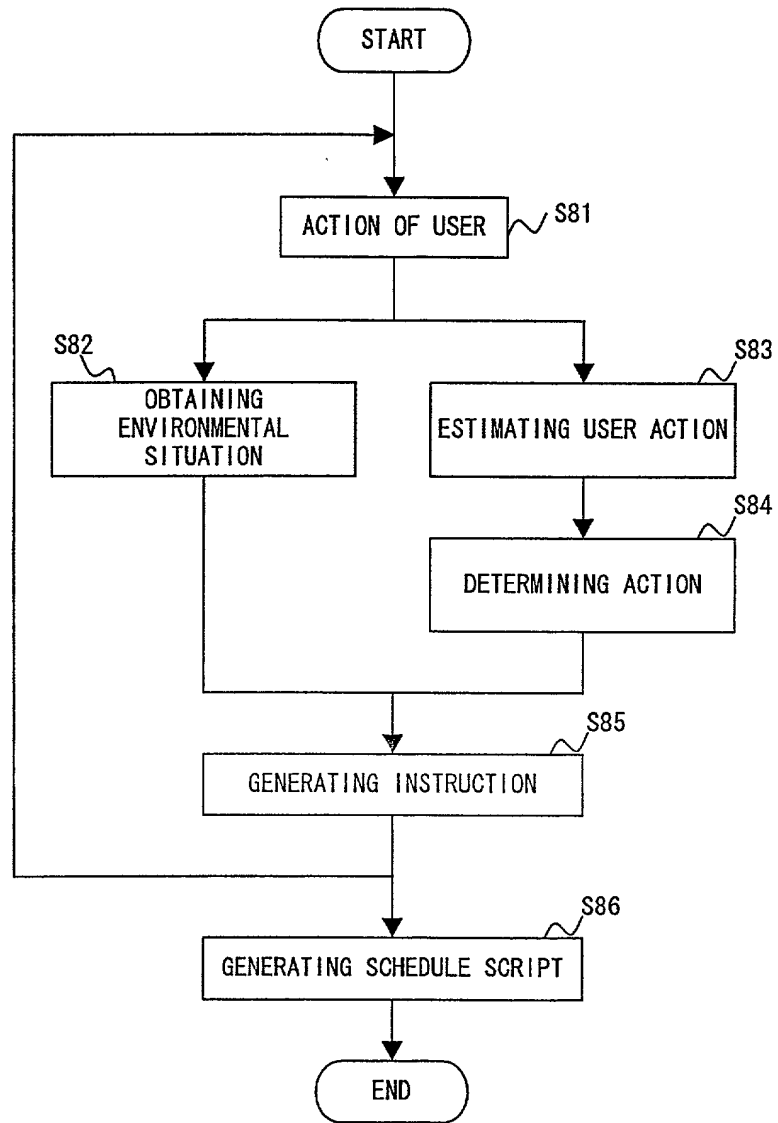


FIG. 13

FIG. 14 is a block diagram of a system architecture. The system includes a USER TERMINAL (PDA) 100, a PHS/CELLULAR PHONE 110, a CENTER 610, a MAP INFORMATION SYSTEM 150, a SPEECH SYNTHESIS SYSTEM 160, and a GPS 170. The USER TERMINAL (PDA) 100 contains a USER OPERATION UNIT 120, a USER PRESENTATION UNIT 130, and an INSTRUCTION EXECUTION UNIT 140. The USER OPERATION UNIT 120 includes a BUTTON GUI 121. The USER PRESENTATION UNIT 130 includes a SCREEN OUTPUTTING SPEECH 131. The INSTRUCTION EXECUTION UNIT 140 is connected to the MAP INFORMATION SYSTEM 150 and the SPEECH SYNTHESIS SYSTEM 160. The GPS 170 provides POSITIONAL INFORMATION to the INSTRUCTION EXECUTION UNIT 140. The PHS/CELLULAR PHONE 110 connects the USER TERMINAL (PDA) 100 to the CENTER 610. The CENTER 610 sends a REQUEST to the PHS/CELLULAR PHONE 110 and receives a SCHEDULE SCRIPT from it.

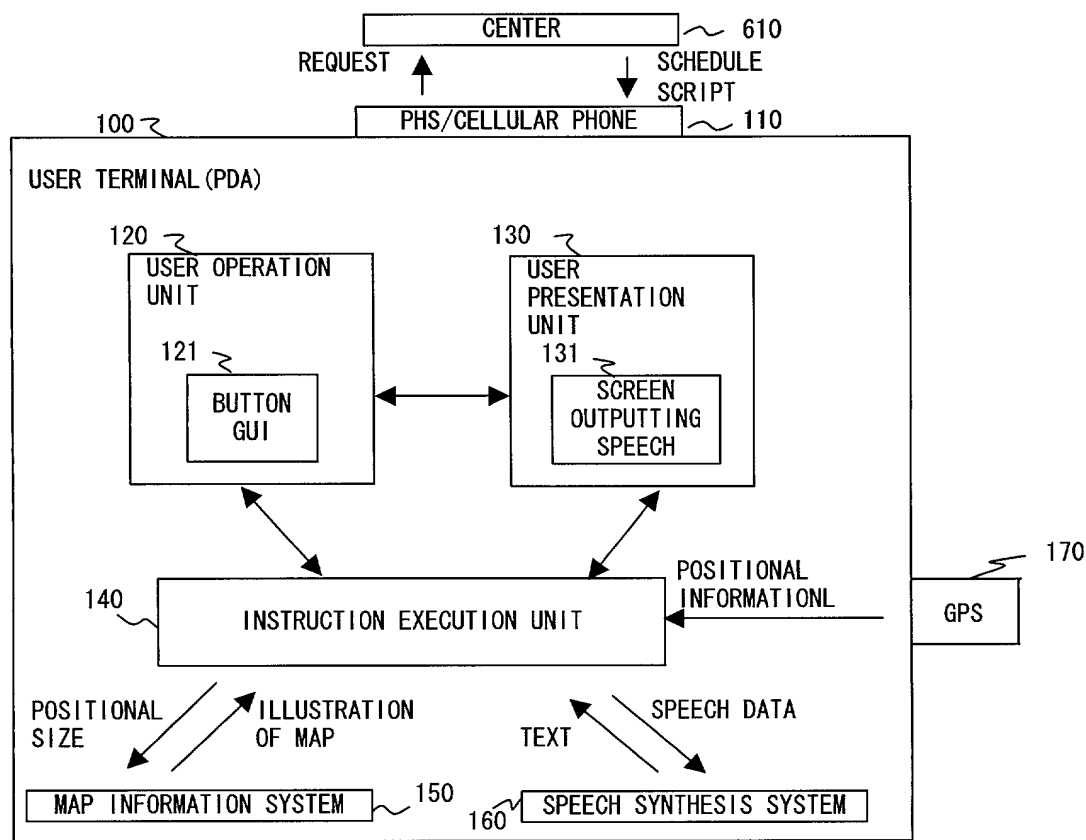
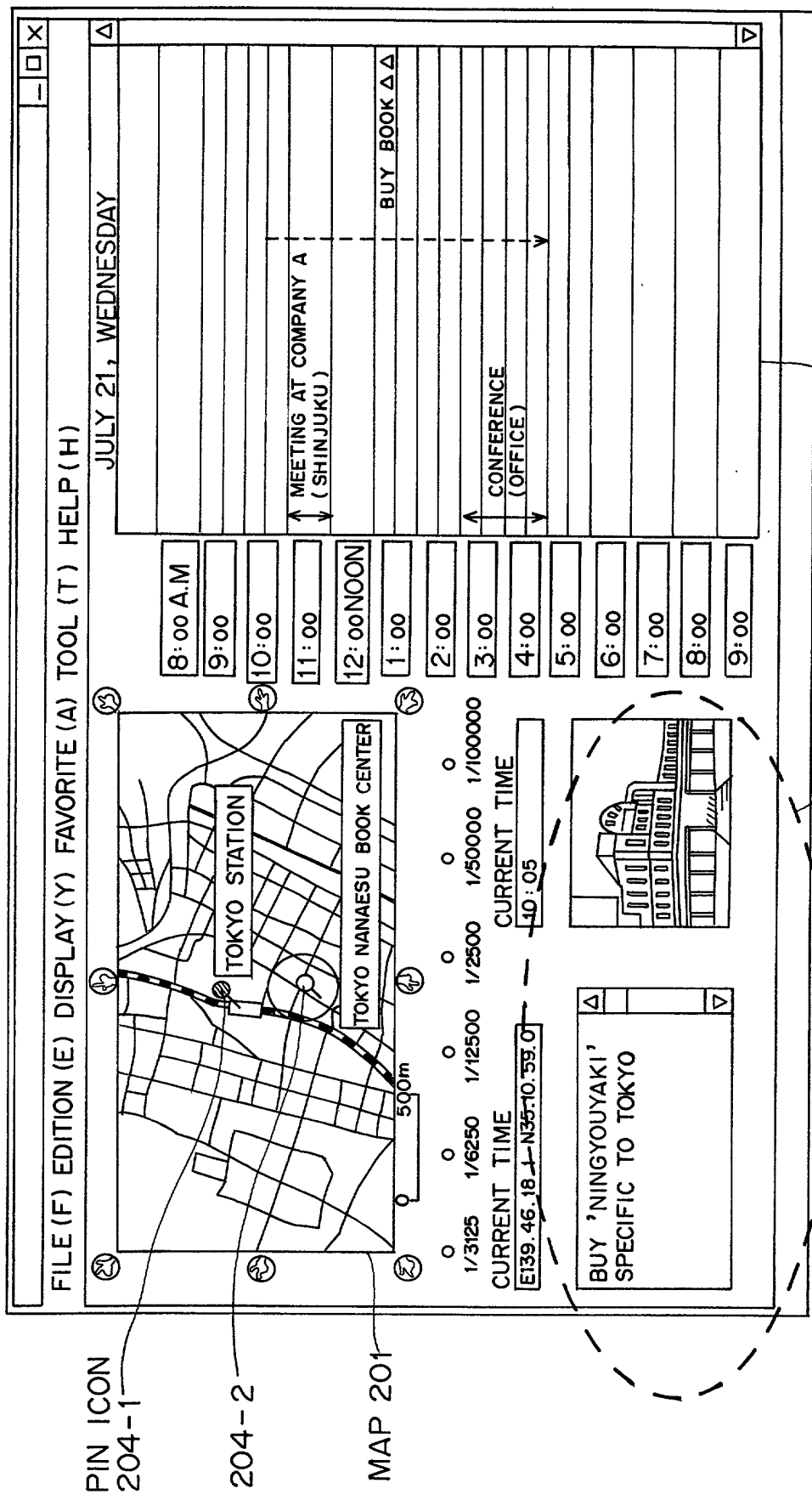


FIG. 14

FIG. 15



PIN ICON  
204-1

204-2

MAP 201

INFORMATION PRESENTATION AREA 203      SCHEDULER 202      VIEWER 200

FIG. 15

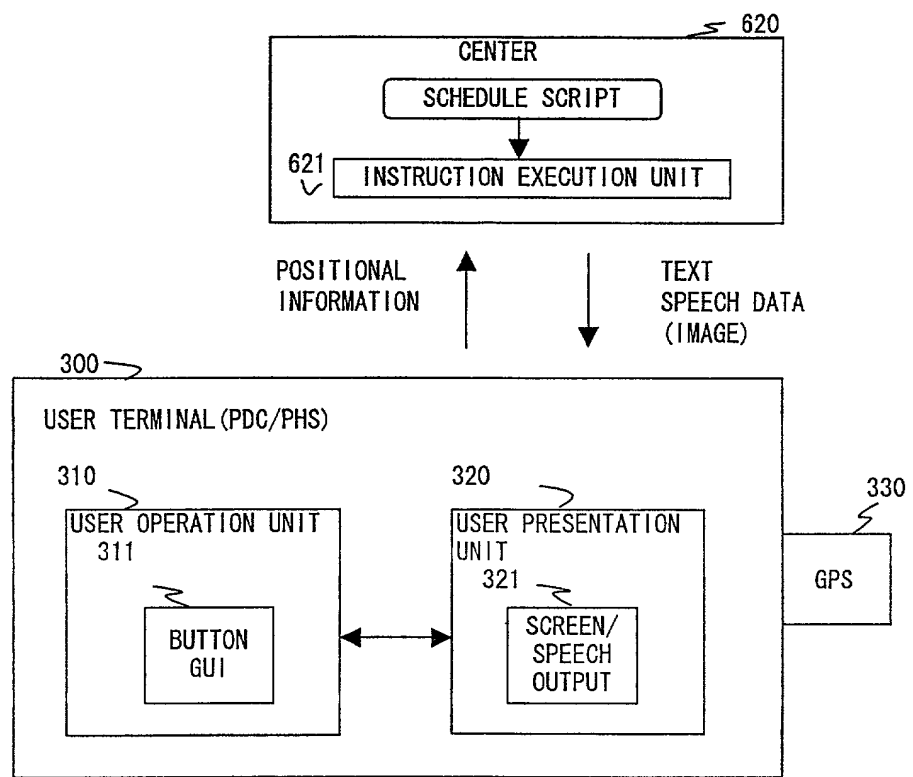


FIG. 16

FIG. 17 is a perspective view of a mobile phone 100 in a closed state. The mobile phone 100 has a main body 110 and an antenna 120. The main body 110 has a display 130, a speaker 140, a microphone 150, and a keypad 160. The display 130 displays the text "BUY 'NINGYOUYAKI' SPECIFIC TO TOKYO". The keypad 160 includes a numeric keypad 161, a call key 162, and a power key 163.

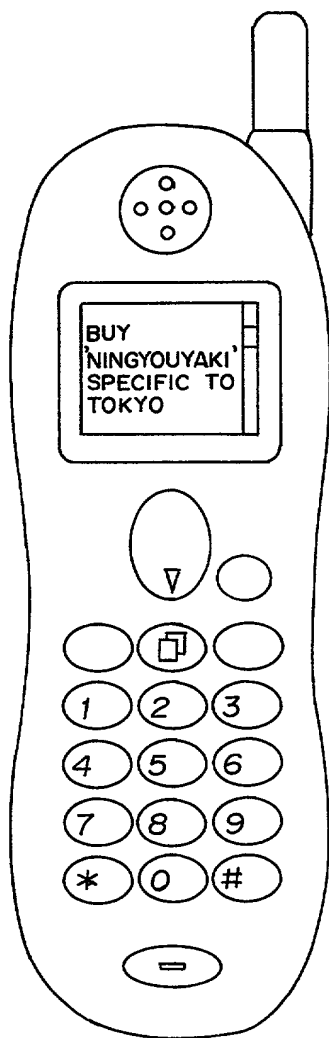


FIG. 17

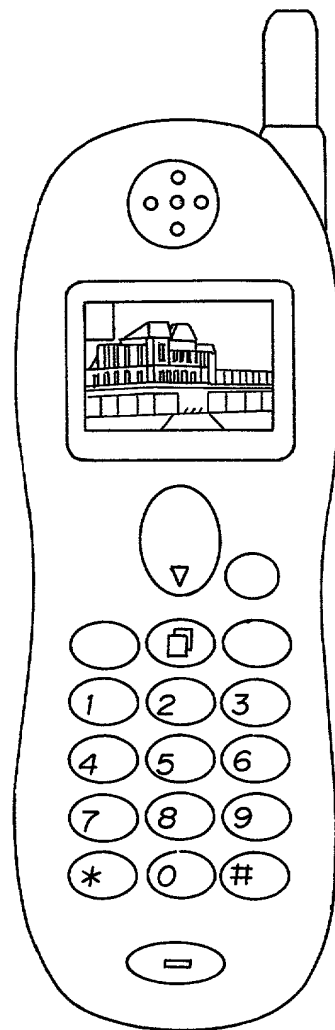


FIG. 18

FIG. 19 is a block diagram of a system for providing a schedule presentation. The system includes a user terminal 1, a center 60, a network 40, and media 50. The user terminal 1 includes an operation input 11, an input unit 18, a network access unit 19, a media access unit 19, a presentation schedule selection unit 720, a user presentation time range specification unit 700, a user presentation place range specification unit 710, a place view display unit 730, and a time axis view display unit 740. The center 60 includes a schedule edition unit 61 and a schedule script 60. The network 40 and media 50 are connected to the network access unit 18 and media access unit 19, respectively. The operation input 11 is connected to the input unit 18. The input unit 18 is connected to the network access unit 18 and the media access unit 19. The network access unit 18 is connected to the network 40. The media access unit 19 is connected to the media 50. The presentation schedule selection unit 720 is connected to the input unit 18. The user presentation time range specification unit 700 and the user presentation place range specification unit 710 are connected to the presentation schedule selection unit 720. The presentation schedule selection unit 720 is connected to the place view display unit 730 and the time axis view display unit 740. The place view display unit 730 and the time axis view display unit 740 are connected to the operation input 11.

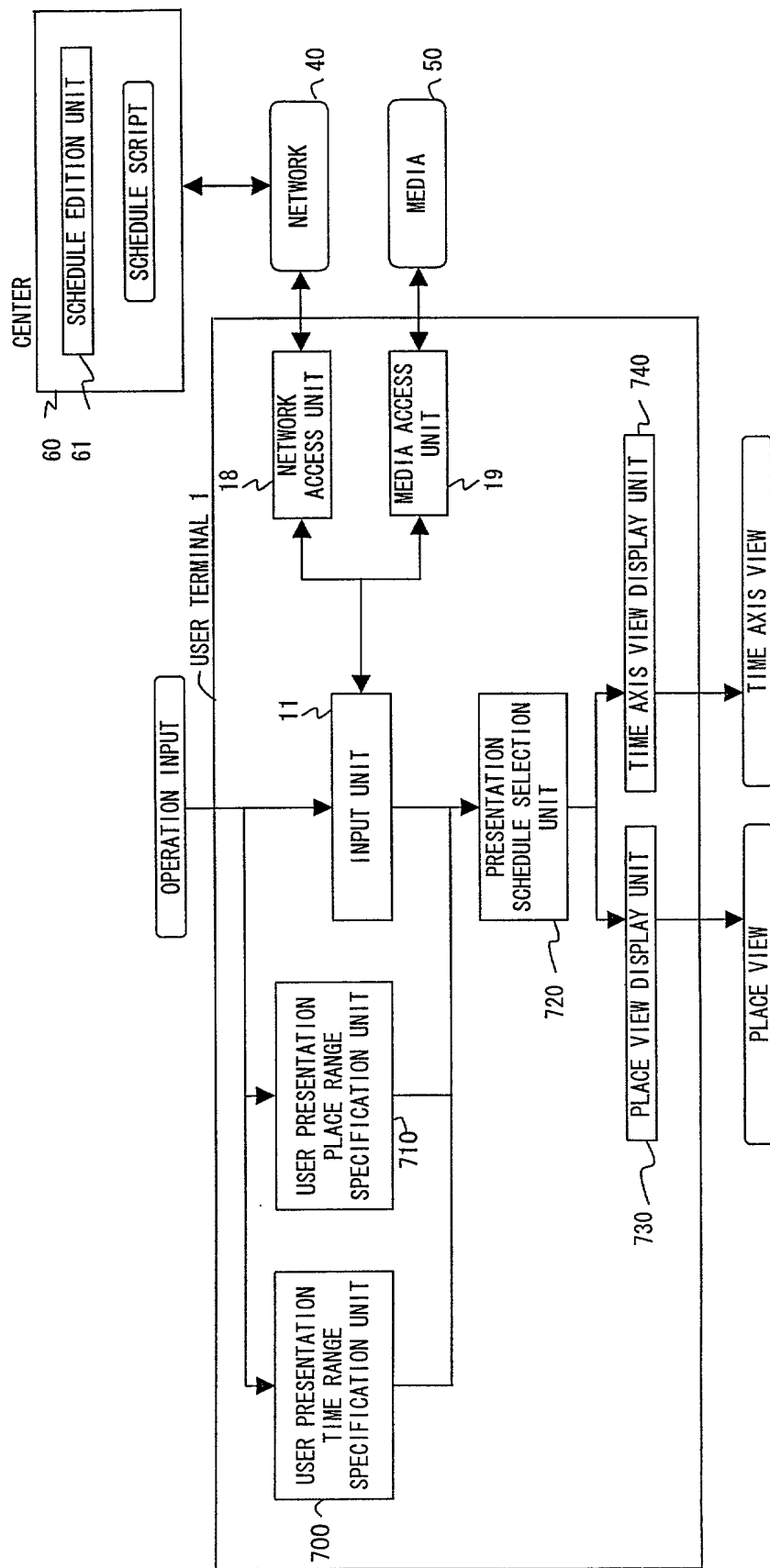


FIG. 19

## Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

APPARATUS AND METHOD FOR  
PRESENTING SCHEDULE INFORMATION  
DEPENDING ON SITUATION

上記発明の明細書（下記の欄でx印がついていない場合は、本表に添付）は、

the specification of which is attached hereto unless the following box is checked:

☐ 月 日に提出され、米国出願番号または特許協定条約国際出願番号を \_\_\_\_\_ とし、  
（該当する場合） \_\_\_\_\_ に訂正されました。

☐ was filed on \_\_\_\_\_  
as United States Application Number or  
PCT International Application Number  
\_\_\_\_\_ and was amended on  
\_\_\_\_\_ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

### Japanese Language Declaration (日本語宣言書)

私は、米国法典第35編119条(a)-(d)項又は365条(b)項に基づき下記の、米国外の国の少なくとも一カ国を指定している特許協力条約365(a)項に基づく国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

#### Prior Foreign Application(s)

外国で先行出願

11-271916

(Number)  
(番号)

Japan

(Country)  
(国名)

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed

優先権主張なし

27th/September/1999

(Day/Month/Year Filed)  
(出願年月日)

☐

(Number)  
(番号)

(Country)  
(国名)

(Day/Month/Year Filed)  
(出願年月日)

☐

私は、第35編米国法典119条(e)項に基づいて下記の米国外特許出願規定に記載された権利をここに主張いたします。

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

私は、下記の米国法典第35編120条に基づいて下記の米国外特許出願に記載された権利、又は米国を指定している特許協力条約365条(c)に基づき権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第35編112条第1項又は特許協力条約で規定された方法で先行する米国外特許出願に開示されていない限り、その先行米国外特許出願提出日以降で本出願書の日本国内または特許協力条約国際提出日までの期間中に入手された、連邦規則法典第37編1条56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

(Status: Patented, Pending, Abandoned)  
(現況: 特許許可済、係属中、放棄済)

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

(Status: Patented, Pending, Abandoned)  
(現況: 特許許可済、係属中、放棄済)

私は、私自身の知識に基づいて本宣言書中で私が行なう表明が真実であり、かつ私の入手した情報と私の信じているところに基づき表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の表明を行なえば、出願した、又は共に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Japanese Language Declaration (日本語宣言書)

委任状： 私は下記の発明者として、本出願に関する一切の手続きを米特許庁事務局に対して遂行する弁理士または代理人として、下記の者を指名いたします。（弁理士、または代理人の氏名及び登録番号を明記のこと）

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number)

James D. Halsey, Jr., 22,729; Harry John Staas, 22,010; David M. Pitcher, 25,908; John C. Garvey, 28,607; J. Randall Beckers, 30,358; William F. Herbert, 31,024; Richard A. Gollhofer, 31,106; Mark J. Henry, 36,162; Gene M. Garner II, 34,172; Michael D. Stein, 37,240; Paul I. Kravetz, 35,230; Gerald P. Joyce, III, 37,648; Todd E. Marlette, 35,269; Harlan B. Williams, Jr., 34,756; George N. Stevens, 36,938; Michael C. Soldner, P-41,455 and William M. Schertler, 35,348 (agent)

書類送付先

Send Correspondence to:

STAAS & HALSEY  
700 Eleventh Street, N.W.  
Suite 500  
Washington, D.C. 20001

直接電話連絡先：（名前及び電話番号）

Direct Telephone Calls to: (name and telephone number)

STAAS & HALSEY  
(202) 434-1500

|             |                                                                                                                                  |                                                         |                       |
|-------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------|
| 唯一または第一発明者名 | Full name of sole or first inventor<br>Hirohisa NAITO                                                                            |                                                         |                       |
| 発明者の署名      | 日付                                                                                                                               | Inventor's signature<br><i>Hirohisa Naito</i>           | Date<br>Aug. 15, 2000 |
| 住所          | Residence<br>Kawasaki, Japan                                                                                                     |                                                         |                       |
| 国籍          | Citizenship<br>Japan                                                                                                             |                                                         |                       |
| 私書箱         | Post Office Address<br>c/o FUJITSU LIMITED, 1-1, Kamikodanaka<br>4-chome, Nakahara-ku, Kawasaki-shi,<br>Kanagawa 211-8588, Japan |                                                         |                       |
| 第二共同発明者     | Full name of second joint inventor, if any<br>Kuniharu TAKAYAMA                                                                  |                                                         |                       |
| 第二共同発明者     | 日付                                                                                                                               | Second inventor's signature<br><i>Kuniharu Takayama</i> | Date<br>Aug. 15, 2000 |
| 住所          | Residence<br>Kawasaki, Japan                                                                                                     |                                                         |                       |
| 国籍          | Citizenship<br>Japan                                                                                                             |                                                         |                       |
| 私書箱         | Post Office Address<br>c/o FUJITSU LIMITED, 1-1, Kamikodanaka<br>4-chome, Nakahara-ku, Kawasaki-shi,<br>Kanagawa 211-8588, Japan |                                                         |                       |

（第三以降の共同発明者についても同様に記載し、署名をすること）

(Supply similar information and signature for third and subsequent joint inventors.)

|         |                                                                 |                                                       |                       |
|---------|-----------------------------------------------------------------|-------------------------------------------------------|-----------------------|
| 第三共同発明者 | Full name of third joint inventor, if any<br>Minoru SEKIGUCHI   |                                                       |                       |
| 第三共同発明者 | 日付                                                              | Third inventor's signature<br><i>Minoru Sekiguchi</i> | Date<br>Aug. 15, 2000 |
| 住 所     | Residence<br>Kawasaki, Japan                                    |                                                       |                       |
| 国 籍     | Citizenship<br>Japan                                            |                                                       |                       |
| 私書箱     | Post Office Address<br>c/o FUJITSU LIMITED, 1-1, Kamikodanaka   |                                                       |                       |
|         | 4-chome, Nakahara-ku, Kawasaki-shi,<br>Kanagawa 211-8588, Japan |                                                       |                       |
| 第四共同発明者 | Full name of fourth joint inventor, if any<br>Yoshiharu MAEDA   |                                                       |                       |
| 第四共同発明者 | 日付                                                              | Fourth inventor's signature<br><i>Yoshiharu Maeda</i> | Date<br>Aug. 15, 2000 |
| 住 所     | Residence<br>Kawasaki, Japan                                    |                                                       |                       |
| 国 籍     | Citizenship<br>Japan                                            |                                                       |                       |
| 私書箱     | Post Office Address<br>c/o FUJITSU LIMITED, 1-1, Kamikodanaka   |                                                       |                       |
|         | 4-chome, Nakahara-ku, Kawasaki-shi,<br>Kanagawa 211-8588, Japan |                                                       |                       |

|         |                                           |                            |      |
|---------|-------------------------------------------|----------------------------|------|
| 第五共同発明者 | Full name of fifth joint inventor, if any |                            |      |
| 第五共同発明者 | 日付                                        | Fifth inventor's signature | Date |
| 住 所     | Residence                                 |                            |      |
| 国 籍     | Citizenship                               |                            |      |
| 私書箱     | Post Office Address                       |                            |      |
|         |                                           |                            |      |
| 第六共同発明者 | Full name of sixth joint inventor, if any |                            |      |
| 第六共同発明者 | 日付                                        | Sixth inventor's signature | Date |
| 住 所     | Residence                                 |                            |      |
| 国 籍     | Citizenship                               |                            |      |
| 私書箱     | Post Office Address                       |                            |      |
|         |                                           |                            |      |

(第七以降の共同発明者についても同様に  
記載し、署名をすること)

(Supply similar information and signature for  
seventh and subsequent joint inventors.)